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Opportunities and Constraints on Voluntary Environmental Strategies: A Comparative Case Study of Integrated Resource Management in Alberta, Canada.

by

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A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the

requirements for the degree of Master of Science

in

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ABSTRACT

The purpose of this study is to explore the external and internal challenges to, and opportunities for, voluntary environmental strategies. Using inter-firm integrated resource management (IRM) as an example of a voluntary strategy, this study employs a qualitative research approach to compare inter-firm IRM in two case study areas, one without these initiatives and one with proposed developments. Previous studies of corporate greening have typically focussed on the determinants of voluntary reform within the firm's external environment, and internal environment within control of the firm itself. This study highlights the constraints posed by the larger external environment, such as the style of environmental governance, and the impacts from activities of other corporations, while also recognizing the importance of internal organizational factors on corporate greening. These findings illustrate how theories in environmental sociology, particularly ecological modernization theory, should focus on both the macro and micro-level processes in environmental reform.

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LIST OF ABBREVIATIONS

AAC:	Annual Allowable Cut
ACNT:	Al-Pac, Conoco Canada, Nexen Canada and TrueNorth Energy
AFPA:	Alberta Forest Products Association
Al-Pac:	Alberta Pacific Forest Industries
CAPP:	Canadian Association of Petroleum Producers
DFMP:	Detailed Forest Management Plan
EIA:	Environmental Impact Assessment
ENGO:	Environmental non-governmental organization
FMA:	Forest Management Agreement
Govt:	Government
IRM:	Integrated resource management
IRP:	Integrated Resource Plan
O&G:	Oil and gas companies
OSB:	Oriented Strand Board

1. INTRODUCTION

With the emergence of a global concern over the state of the environment, corporations began to be recognized as one of the primary forces driving ecological degradation (Hawken, 1993; Karliner, 1997). Accordingly, over the past 40 years, much of the pressure for environmental protection has been directed at corporations[1] (Hoffman, 1997), and they are now seen as important agents responsible for environmental reform (Shrivastava, 1995). Consequently, corporations have either been forced to reform their operations owing to stringent environmental regulations or, in some cases, have voluntarily exceeded the requirements of existing regulations (Sharma, 2000). In the discipline of environmental sociology, scholars have begun to analyze such instances of re-structuring in industrial capitalist systems to incorporate environmental improvements, described as ecological modernization (Mol & Sonnenfeld, 2000). Owing to the significant optimism around voluntary corporate environmental reform, the characteristics and determinants of voluntary environmental strategies have captured the interest of scholars in organizational theory, sociology and business management. Research on voluntary environmental strategies has typically focused on determinants—what causes a corporation to voluntarily reform its operations—but studies have yet to understand if there are specific challenges to corporate greening, particularly challenges external to the firm. In addition, few studies have paid attention to voluntary environmental strategies in the natural resource extractive sector, focusing instead on examples in the manufacturing sector.

This study examines voluntary environmental strategies in Alberta's forestry and oil and gas sectors, where operations take place in a complex external environment. For

[1] This research defines a corporation as any business organization consisting of a single owner or association of owners (including stockholders), which earns profits, incurs debt and/or owns property. The terms corporation, firm and company will be used interchangeably. See Cambridge Dictionaries Online, 2003.

instance, operations in these sectors typically occur on public, rather than privately owned land, which is simultaneously accessed by multiple users. In addition to these influences, the productivity of firms is frequently affected by the policy regime guiding their operations from planning through implementation, as well as the fluctuations in the market for their products. As demonstrated by this study, the external policy and natural environment has a significant influence on operations in Alberta's forestry and oil and gas sectors, particularly voluntary environmental strategies. Factors internal to the firm also have a significant influence on the success of voluntary environmental strategies in these sectors, as firms must be able to function, adapt and innovate in a complicated external environment. Research on voluntary environmental strategies in Alberta's natural resource sectors comes at a particularly critical time in this province, as oil and gas and forestry firms are under increasing public and regulatory scrutiny owing to emerging concern over the combined environmental impacts of their developments in areas that have experienced little industrial development in the past (Alberta Environmental Protection, 1998; Sawyer et al., 1998; MacCrimmon & Marr-Laing, 2000).

Using a qualitative research approach and a comparative case study of two regions experiencing different levels of success with voluntary environmental strategies, this study identifies how the external environment is perceived to influence voluntary environmental strategies in the forestry and oil and gas sectors, and how key actors within these firms perceive the internal capacity of their companies to deal with these factors. In one case study, oil and gas and forestry firms are planning to coordinate their normally independent operations using an integrated resource management (IRM) approach to collectively reduce the environmental impact of their operations. In another region of the province, on the other hand, a forestry company is interested in participating in similar IRM programs with oil and gas operators, but has been unsuccessful. These

inter-firm IRM initiatives are considered to be voluntary environmental strategies, as they are designed to reduce the environmental impact of natural resource extraction and are not in response to regulations.

This Master's thesis presents the purpose of the research project, describes the methodology used to explore phenomena of interest, presents and interprets the major findings, and, finally, explains how findings contribute to current knowledge in the study of voluntary environmental strategies and environmental sociology, particularly recent interest in ecological modernization. This first chapter presents the purpose of the research, as well as the significance and limitations of the study. The following chapter provides a description of current research on voluntary environmental strategies and inter-organizational cooperation. Chapter three describes Alberta's natural resource policy regime, and provides background information on the two case study regions. Chapter four outlines the specific methodology used in the exploratory and comparative case study phases of this research project. The fifth chapter presents the key findings, while the sixth chapter discusses how these findings explain the perceived external and internal factors affecting inter-firm IRM programs and ties these findings to a broader discussion of voluntary environmental strategies and ecological modernization theory. In the concluding chapter the study's purpose and findings are summarized, and a discussion of areas for future research is provided.

PURPOSE OF THE STUDY

The purpose of this study is to illustrate how external and internal factors influence voluntary environmental strategies in Alberta's natural resource sector, particularly how factors in the external environment may hinder a firm's ability to adopt such strategies. The proposed inter-firm IRM programs, described above, will be used as an example of a voluntary environmental strategy. This research examines the influence of certain key

factors outside the direct control of the firm but within the influence of state and non-state actors on inter-firm IRM programs. Various determinants of inter-firm IRM originating from within the firm, such as corporate leadership and internal capacity, are also explored. While this study does not provide a comprehensive assessment of internal organizational behavior, an examination of internal factors noted by interviewees helps to elucidate the relative impact of external factors on a firm's environmental responsiveness. This research compares two case studies with intensive resource development experiencing different levels of success implementing inter-firm IRM programs. One case study does not have any formal inter-firm IRM programs, while the second case study has several formal industry-initiated plans. Findings from this research are based on the perceptions of key actors working within these two case study regions.

RESEARCH OBJECTIVES

The central objective of this study is to expand current understanding of the external and internal influences—particularly challenges—on voluntary corporate environmental practices. Using inter-firm IRM as an example of a voluntary environmental strategy, this study aims to:

1. Describe and summarize the natural resource policy regime within which companies undertaking inter-firm IRM programs must work.
2. Describe how structural factors, such as the natural resource policy regime, are perceived by key actors to influence inter-firm IRM programs.
3. Examine the perceived constraints and benefits of engaging in inter-firm IRM programs.
4. Illustrate how the effect of certain factors internal to the firm is perceived to affect inter-firm IRM programs.
5. Describe how inter-organizational cooperation is perceived to affect inter-firm IRM

programs.

6. Identify factors perceived to facilitate or constrain inter-organizational cooperation in the implementation of inter-firm IRM programs.
7. Identify other perceived internal and external constraints on inter-firm IRM programs.

SIGNIFICANCE OF THE STUDY

Scholars have begun to pay increased attention to corporate environmental responsibility, particularly ecological modernization theorists who point to the necessary internalization of environmental concerns in economic practices for greater environmental improvements. Extant empirical research on corporate environmental responsiveness reveals the powerful influence of internal and external incentives on a firm's ambition to improve its environmental practices. Very little attention, however, is paid to factors that challenge a firm's ability to be environmentally responsive, particularly factors external to the firm. As the findings from this study illustrate, in the case of inter-firm IRM between the oil and gas and forestry sectors, external factors have a significant influence on corporate environmental practices. A greater understanding of the factors preventing willing resource extractive firms from engaging in environmental improvements will assist researchers and policy makers in developing strategies for future inter-firm IRM initiatives. This research is, therefore, crucial for improving environmental policy in Alberta, as some firms may be motivated to improve their practices, but face complications arising from factors external to the firm, such as the existing government policy regime. Forestry and oil and gas firms will also benefit from this study describing the external and internal challenges to voluntary environmental strategies, particularly as these companies are being handed increasing land management responsibility by the provincial government. Improvements in environmental policy are particularly essential

in Alberta, owing to increasing concern over the environmental impacts of expanding industrial resource extraction in Alberta's northern boreal forest.

Finally, this study contributes important empirical insights to ecological modernization theory, by highlighting certain contexts in which the implementation of eco-modernist programs may depend on significant institutional reform.

LIMITATIONS OF THE STUDY

In order to focus the study and complete it within a reasonable amount of time, the study's scope is limited in several ways. First, it does not evaluate the effectiveness of inter-firm IRM initiatives, nor does it evaluate the effectiveness of these initiatives in comparison to government-led initiatives and government policy. In addition, the degree to which each of the case study corporations is committed to environmental responsibility is not compared. As well, the individuals interviewed for this study were restricted to those who work closely with inter-firm IRM programs, such as the employees of the firms undertaking these programs and the government agencies overseeing their development. Consequently, the perspectives of other key actors, such as members of First Nations and environmental non-governmental organizations, are restricted to a limited number of interviewees. Lastly, research focuses largely on local, rather than global, influences on corporate environmental strategies. To fully understand all of the above issues, a long-term study would be required, beyond the scope of a Master's thesis.

Certain methodological limitations also exist. Data collection was limited to two field seasons so as to comply with requirements of a Master's thesis. Although extensive data collection occurred, there were limits to the length of the policy review and the number of interviews that could be conducted. The number of respondents interviewed was also limited by respondent availability. Consequently, only select individuals with specific knowledge were interviewed and certain important interviewees were likely missed. In

addition, an assessment of incentives for and challenges to corporate environmental responsiveness was limited to publicly available documentation and statements from respondents. It is possible that these sources of data may not reflect the true intentions of relevant actors. In addition, triangulation of data sources was limited by their accessibility. Corporate documents used in data triangulation, for example, were few and were limited to publicly available documents. As the interviews were conducted with a number of key representatives of relevant organizations, and the questions were developed after extensive background and exploratory research on the key issues in the relevant subject areas, the findings from this research likely provide a reasonably accurate account of the relationships of interest to this study.

The next chapter presents a review of the literature on the determinants of voluntary environmental strategies and inter-organizational cooperation. As inter-firm IRM programs are guided by government regulation and policy, the literature review also includes a section describing some of the policy critiques of Alberta's past and present IRM policies.

2. LITERATURE REVIEW

This chapter summarizes a large body of research addressing themes that were predicted to emerge in the data. The following section provides a review of the literature in corporate environmental responsibility and organizational theory. The second section provides an overview of some of the policy critiques relating to Alberta's experience with IRM policy.

There is an immense body of literature on corporate greening and corporate environmental responsibility. Scholars in this research area come from several disciplines including organizational studies, business management, sociology and environmental studies. Of particular interest to this thesis project are voluntary environmental strategies, that is, initiatives developed in response to cues other than strict regulatory requirements, and the factors constraining their development. Owing to their applied nature and ultimate goal of integrating economic growth and environmental protection, voluntary environmental strategies can be characterized as eco-modernist political programs. To illustrate the macro-theoretical context of voluntary environmental strategies, a brief discussion of some of ecological modernization theory's major premises is presented.

Following this introduction, the literature on corporate greening is reviewed. This body of literature tends to focus on the determinants and incentives influencing voluntary environmental strategies and suggests that these influences can originate from inside the firm or the firm's external environment. Consequently, this literature review divides extant research into internal and external influences on corporate environmental responsibility. External influences include those originating from the state, such as the threat of future regulation, the system of governance, and the policy regime within which a firm operates. External influences also originate from other actors occupying the external environment, such as stakeholders and industry associations who place demands

on firms. Factors originating from inside the firm also have a significant influence on voluntary environmental strategies. Specifically, the firm's internal mandate to increase its competitive advantage through greening or to support a leader's commitment to environmental responsibility has a direct influence on voluntary environmental strategies. Personnel at all levels of the organization also have an important role to play in corporate greening, particularly if they espouse and promote corporate greening and convince other members of the organization of the benefits of greening. Internal capacity and strategic planning are also significant factors, as firms must be able to develop and implement environmental strategies.

The literature strongly suggests that voluntary environmental strategies are affected by the policy regime and system of governance; hence this literature review also describes some of the policy critiques discussing the province of Alberta's IRM policy framework. Some of these reviews suggest that Alberta's IRM policy regime is problematic and may act as a constraint on future IRM initiatives.

Inter-organizational cooperation is essential to inter-firm IRM programs, as it requires cooperative decision-making between firms and the coordination of proposed resource developments. As there is almost no academic literature discussing inter-firm IRM, literature from organizational theory was reviewed to provide some insight on the precursors to cooperation. A review of the literature suggests that successful cooperative relationships depend on organizational interdependence, mutual goals and the accruement of benefits through social exchange. There are practical considerations as well, such as the fulfillment of an organizational goal and geographic proximity of partners. Trust, commitment and mutual control over relationships are also important determinants of successful inter-organizational cooperation. Factors external to cooperating firms, such as government regulation, can also affect cooperation.

ECOLOGICAL MODERNIZATION

Ecological modernization describes a re-structuring of industrial capitalist systems to incorporate environmental improvements (Mol & Sonnenfeld, 2000). It is both a sociological theory concerning the social and institutional practices of production and consumption, and a political program outlining strategies toward environmental reform (Mol, 1996; Pellow, Schnaiberg, & Weinberg, 2000). Voluntary environmental strategies—and, therefore, inter-firm IRM programs—can be thought of as examples of ecological modernization, or eco-modernist political programs, for two reasons. First, they acknowledge that there are ecological limits to industrial production, and second, they attempt to restructure industrial production to minimize environmental damage while maintaining or increasing economic activity. Some scholars maintain that ecological modernization is most efficient at the operational level if specific mechanisms for environmental reform relying heavily on scientific and technological improvements are used (Spaargaren and Mol, 1992), while at the political level, environmental improvements require policy learning and institutional reform (Weale, 1992; Mol, 1996). Proponents of ecological modernization tend to dismiss command and control regulatory strategies as harmful to environmental improvements, advocating instead for state-societal partnerships (particularly with industry), where rather than directing policy, government steers policy within a participatory decision-making framework (Hogenboom *et al.*, 1999; Mol, 1996; Janicke and Weidner, 1995). Many of these characteristics considered essential to the implementation of eco-modernist programs are also noted by the corporate greening literature as facilitating the adoption of voluntary environmental strategies.

CORPORATE ENVIRONMENTAL RESPONSIBILITY

Environmental responsibility, environmental friendliness, corporate greening and environmental responsiveness are, for the most part, interchangeable terms, although definitions of all four of these terms vary as greatly as the immense body of literature in this topic area. Vertinsky and Zietsma (1998) define corporate greening as "the development of a commitment to environmental protection and enhancement goals and the development of capabilities to respond to changes in the natural environment" (p.1). Similarly, voluntary environmental strategies are defined as "a consistent pattern of company actions taken to reduce the environmental impact of operations, not to fulfill environmental regulations or to conform to standard practices" (Sharma, 2000 p. 684). Hence, the voluntary adoption of 'green' industrial practices represents a shift from traditional thinking where corporate greening was strictly a response to structural *requirements*, such as regulations, to greening as a response to external pressures or an internal corporate mandate. The literature identifies a range of corporate greening initiatives, from the greening of certain products, to the greening of the entire production process involving the development of so-called environmental management systems (Prakesh, 2000). Based on the definitions above, this research project will assume that corporate environmental responsiveness and corporate voluntary environmental strategies refer to instances where for-profit organizations voluntarily engage in efforts to mitigate the environmental impacts of their operations.

There is an extensive body of research on the determinants of corporate greening. The following section will divide extant literature into two categories: external and internal influences on greening. External influences are those originating from outside the firm, whose influence is significant enough to prompt a response. Internal influences, on the other hand, originate from inside the firm and also prompt a corporate response.

External Factors

The state as a regulatory body has a significant influence on the development of environmental practices. Corporate environmental responsiveness can be the result of legislation or the mere threat of future regulation. When regulations are imposed, most firms decide to improve their environmental practices rather than pay fines and penalties (Dechant, Altman, Downing, & Keeney, 1994; Arora & Cason, 1996; Bansal & Roth, 2000). Most literature in the realm of corporate environmental responsibility focuses on corporate greening that occurs independently of government regulation. Research illustrates, for example, that many firms will exceed legislated requirements for their industry, particularly if company leaders anticipate regulations will be more strict in the future (Arora & Cason, 1996; Bansal & Roth, 2000). The voluntary approach is thought to be desirable to both government and industry as it reduces the need for future legislation as well as regulatory enforcement and allows industry, rather than government, to decide how to implement environmental improvements (Arora & Cason, 1996; Gibson, 1999). This form of corporate greening tends to emerge in a decentralized environmental governance framework (Gibson, 1999).

Not only is the threat of regulation an important factor encouraging voluntary environmental strategies, but the policy framework around these regulations can also facilitate the formation of these initiatives and increase their effectiveness. Gibson (2000) argues that supportive national and international policy frameworks are necessary to produce effective and credible corporate environmental strategies. So far, he asserts, firms have been successful at adopting the "low hanging fruit" of environmental strategies, but have not yet been encouraged to pursue the more comprehensive and therefore expensive environmental improvements (p. 7). He argues that researchers have yet to understand the range of incentives and barriers influencing voluntary initiatives, in

particular how policy regimes can be structured to encourage more effective voluntary initiatives.

Cashore and Vertinsky (2000) argue that a firm's decision to be environmentally proactive is largely determined by external factors greater than that of legislation. They argue that the system of governance in which a firm operates has a significant influence on environmental responsiveness. Here the system of governance refers to the relationship between the state and organized interests as well as the regulatory regime imposed by the state (p.4). These authors examine Canadian forest company responses to demands for environmental protection and conclude that changes in the governance system, where there is a shift of decision-making power away from firms and back to government, more strongly persuade firms to comply with environmental regulations than in systems where power is shifted toward firms and away from government. In systems where firms are given considerable freedom in deciding how to meet environmental objectives, on the other hand, environmentally concerned companies are better able to adopt innovative approaches and thus more easily meet their objectives than in a system that strictly defines how firms should meet these objectives. Thus, they conclude, a policy environment friendly to corporate greening and rigorous environmental protection must simultaneously threaten firms with increasing government authority over environmental regulation while allowing firms enough flexibility to determine how to meet regulatory requirements. Cashore and Vertinsky's research compared forestry companies in three Canadian provinces, each with a slightly different governance system. This research, in contrast, examines how firms in the *same* governance system differ in their ability to meet environmental objectives.

Moffet and Bregha (1999) also note the influence of systems of governance on voluntary environmental strategies, and argue that when governments delegate certain responsibilities to industry in order to facilitate corporate greening, that is decentralize

environmental protection, government institutions must still retain a key leadership role in environmental governance. In a decentralized policy environment, they argue, governments must be willing to adopt new institutional arrangements beyond the traditional regulatory role, thereby allowing corporate greening under strong government leadership.

The public, when perceived as either consumers or stakeholders, also has a significant influence on corporate environmental practices. The influence of the public on environmental responsiveness is explained using stakeholder theory. Stakeholder theory suggests that environmentally responsible firms generally have strong relationships with individuals affected by the organization's activities (stakeholders) who demand environmental protection (Dechant et al., 1994). There is considerable evidence that the public has a significant influence on firms' greening behaviour. Arora and Cason (1996), for example, found that a popular voluntary environmental program in the United States was greatly motivated by a firm's desire to improve the public's perception of the chemical industry. Other research supports this theory and suggests that when firms are aware of the attitudes of their clients and stakeholders, and when these groups value environmental protection, firms will likely adopt greening strategies (Arora & Cason, 1996; Henriques & Sadorsky, 1996; Banjeree, 2001). Thus, according to stakeholder theory, firms will differ in their degree of awareness of the external environment and responsiveness to external cues. Government-initiated public participation programs have facilitated this awareness and responsiveness. In the US, for example, as a result of federal government initiated consultation processes between the chemical industry and local communities, many firms in this industry are now accustomed to consulting with stakeholders (Chess & Lynn, 1996). Along with this consultation process is a marked improvement in corporate environmental performance, leading Chess and Lynn (1996) to argue that strong relationships between firms and local communities may lead to better

environmental performance. Thus, a study of incentives for and barriers to engaging in environmental strategies should examine the role of stakeholders in influencing environmental responsiveness.

Pressure from the public is not the only concern of corporations. A recent study by Bansal and Roth (2000) found that field cohesion plays a role in motivating firms to engage in environmental protection. Field cohesion is the extent to which a corporation is tied to other corporations in an industrial network. For example, companies in the forest industry often have industry associations, and as such, often make changes to the industry as a whole, rather than make individual reforms. Bansal and Roth (2000) argue that field cohesion constrains innovation and environmental responsiveness, because companies will resist pursuing environmental strategies independently at the risk of displeasing other members of the industrial network. Thus, they conclude, the stronger the field cohesion, the less likely firms will pursue greening strategies. Alternatively, field cohesion may be a source of pressure for environmental improvements. Industry associations, for example, may support programs certifying products for their environmentally friendly qualities. In Alberta, the Alberta Forest Products Association has developed their own certification program FOREST*CARE*, which recognizes companies who meet certain performance standards towards sustainable forest management (Alberta Forest Products Association, 2002). This research explores the influence of field cohesion in Alberta's natural resource industries on corporate environmental responsiveness, particularly to determine how associations encourage or discourage firms from improving their environmental practices.

Internal Factors

External factors are only part of the explanation of corporate environmental practices. Factors internal to the firm are also crucial to the implementation of environmental

strategies. In particular, a firm's ability to maintain a competitive advantage, its personnel's environmental values, corporate leadership and the internal capacity to design and implement environmental strategies are all important internal factors influencing corporate greening.

A large body of literature describes how corporate environmental responsiveness arises from a central goal of maintaining a competitive advantage. While some firms perceive environmental protection as a threat to production, other firms perceive it as a mechanism to maintain or increase production by targeting a specific market or increasing production efficiency. So-called environmental products have their own significant market share, and by targeting these products firms gain a competitive advantage over their more conventional counterparts (Elkington, 1994; Shrivastava, 1995; Hall & Roome, 1996). As such, firms must decide to target this 'green' market and design their production processes and products accordingly. Although not ostensibly in response to market demands, some firms adopt environmental strategies simply to increase their efficiency and productivity through a reduction in wastes and inputs (Dechant et al., 1994; Porter & van der Linde, 1995; Shrivastava, 1995; Arora & Cason, 1996; Hall & Roome, 1996; Gibson, 1999). By increasing their efficiency, costs of production decrease, allowing firms to maintain their competitive advantage. In short, if there is the internal recognition that greening makes good business sense, certain firms will be motivated to improve their production practices.

Individuals within a firm, at all levels of employees, have been shown to influence corporate environmental responsiveness. Leaders, such as chief executive officers, are crucial actors in the greening process as they have much of the decision-making power in the organization. Leaders are key actors in interpreting the needs and values of internal and external members of the organization and are largely responsible for ensuring the organization responds to these cues (Mitroff, 1992). Furthermore, they are responsible for

allocating resources to ensure organizational goals are met (Mintzberg, 1992). Factors influencing leaders to pursue greening strategies can be cognitive and normative. In fact, the actions of many firms reflect the values of their leaders and if leaders are committed to greening, then the organization is more likely to be successful in their pursuit of environmental practices (Ballantyne & Gerber, 1994; Dechant et al., 1994; Vertinsky, 1998; Moffet & Bregha, 1999). Vertinsky and Zietsma (1998) suggest that leaders of responsive firms have one of two perspectives on corporate environmental responsibility. They may feel that environmental responsibility is a value compatible with but independent of their personal values or this value may overlap with a personal commitment to environmental protection. Vertinsky and Zietsma argue the latter stance is an ecocentric stance and as such, the firm has a more fundamental commitment to environmental protection, which then drives its operations. Dechant et al (1994) found that company leaders, by driving the formation of corporate mission statements and promoting the development of appropriate environmental strategies, are central in operationalizing a corporate vision of environmental sustainability. In their research, Bansal and Roth (2000) also found that a genuine individual concern for social good drove the environmental responsiveness of many firms, particularly if this concern came from an influential employee. Although corporate leaders are a key actor in corporate greening, employees of an organization also have a role in espousing and promoting environmental responsibility. For example, Ballantyne and Gerber (1994) found that in many green firms most employees of the corporation, as well as their leaders, supported corporate environmental responsibility. Thus, this research on corporate environmental responsiveness recognizes the importance of value orientations from all levels of personnel on a firm's willingness to improve its environmental practices.

Even companies that have environmentally concerned personnel are not guaranteed to pursue environmental practices. According to Prakesh (2000), one of the most

important determinants of corporate greening is the ability of environmentally minded managers and leaders to convince other members of the organization to pursue environmental strategies. Prakesh argues that one must understand the internal dynamics within firms, particularly when managers pursue environmental strategies that produce inter-managerial conflicts. In other words, Prakesh examines the firm not as a cohesive entity but as a composite of individual actors, and concludes that corporate greening is a function of a manager's ability to resolve the profit versus greening conflict. Thus, a firm may have managers who push for greening initiatives, however if they are not able to convince other members of the organization of the value of environmental improvements, the firm is unlikely to green.

Although a firm may want to improve its environmental practices, it must also be capable of implementing environmental strategies despite external constraints. Owing to the influence of changing federal and provincial regulation, international markets, and in the case of transnational firms, external leaders and shareholders, resource extractive sectors are particularly vulnerable to their external environment and must be prepared to deal with changing conditions. To manage external threats and opportunities the firm must be able to plan, which may include trying to control for future events and make decisions providing the greatest benefits over the long-term. Moffet and Bregha (1999) argue that the firm's ability to design and implement environmental strategies is an important determinant of successful environmental strategies. They find environmentally responsive firms have clear objectives for environmental strategies further supported by the organization's core values. Responsive firms must also have the capacity and resources to deal with complex information, foster innovation and operationalize stated goals and objectives. As such, the extent of strategic environmental planning may be a significant internal capacity issue. One model of strategic planning suggests that planning is a conscious process of assessing external threats and opportunities while identifying

internal strengths and weaknesses (Bryson & Roering, 1988; Mintzberg, 1994). The premise of this so-called Design School model—only one among several schools of strategic planning[2]—is that firms who have the means to assess external and internal factors, as well as develop appropriate processes and actions, are able to respond to emerging threats and opportunities. The model also suggests that corporate leadership is key in strategic planning and successful planning is often simple, explicit and unique (Mintzberg, 1994). Successful planning involves identifying the purpose of corporate goals and selecting appropriate personnel to implement these goals (Bryson & Roering, 1988). Although strategic planning is a function of internal resources, output and processes (Bryson & Roering, 1988), Mintzberg (1994) is cautious against finding a specific 'recipe' for strategic planning success.

This research on inter-firm IRM examines a range of internal factors that challenge an organization's efforts to implement environmental strategies. It is important to understand whether organizations with a stated commitment to environmental objectives possess certain characteristics that complicate or facilitate the implementation of environmental strategies.

CRITIQUES OF ALBERTA'S INTEGRATED RESOURCE MANAGEMENT POLICY

Before reviewing the literature on inter-organizational cooperation, critiques of Alberta's IRM policy will be discussed briefly, particularly as the previous discussion of external influences on voluntary environmental strategies illustrates that the policy regime and system of governance within which a firm operates has the potential to influence strategies. In Alberta's natural resource sector, a number of policies influence the planning and operations of resource extractive firms. In fact, since the late 1970's, the government has implemented various IRM policies that have likely influenced current

[2] For more discussion on the various schools of strategic planning see Mintzberg, (1994) and Mintzberg, Ahlstrand & Lampel (1998).

inter-firm integrated resource planning initiatives. Some of the policy reviews of the provincial government's IRM policy regime suggest that it may act as an external constraint on governmental and inter-firm IRM initiatives. An explanation of the IRM policy regime itself is presented in the Case Study Description chapter.

The government's IRM policy regime, spanning the 1970's through to the early 1990's has been criticized for several reasons. Critics argue that while the integrated planning policy mandated a balance between environmental protection and resource extraction, in practice resource extraction was significantly more prominent. Several authors have concluded that rather than providing for improved resource management and conservation, the Integrated Resource Plan (IRP) policy was instead closely connected to an agenda of maintaining and even increasing resource development opportunities in Alberta (Walther, 1987; Timoney & Lee, 2001). For example, Walther (1987) notes that the government had an implicit interest in zoning certain planning regions to allow for resource extraction, particularly as the government received a share of the financial benefits derived from extraction. Kennett and Ross (1998) also note the government's enthusiastic support of industrial development and its approval of resource extraction and development in the majority of planning areas, while failing to set aside equally substantial non-use areas. These authors suggest that the government essentially foreclosed on future land use options by continuing to issue development approvals at a rate exceeding the lengthy planning process (Ibid.). Government documents produced at the time confirm that economic development through resource development was a indeed a central goal of the IRP policies (Alberta Energy and Natural Resources, 1977; Alberta Energy and Natural Resources, 1983; Cottrell, 1985; Sparrow, 1985).

The IRP policies have also been criticized for lacking clarity and regulatory 'teeth'. Walther (1987) refers to the "institutionaliz(ed) vagueness" of IRP policies, where they provided general value statements and land management goals, rather than clear, binding

land management direction. Kennett (2002) also recognizes this broad ambiguity as a contributor to the policy's eventual failure, in addition to the substantial flexibility of the planning process and the lack of accompanying structural reform. Citing a lack of political and financial commitment, he argues that the IRP process "yielded disappointing results" (p.3). As a result of the significant criticism of the IRP policy and its gradual abandonment after the early 1990's, natural resource policy observers have recognized the serious need for the province to adopt a more integrated approach to the legislation and management of public land (Kennett & Ross, 1998; Kennett, 2002; Ross, 2002).

Like its predecessor, the government's new IRM policy has been subject to critical scrutiny. Despite the release of a new IRM policy in 1999, policy observers have noted that the province is still far from achieving an integrated approach to resource management. Specifically, as neither of the proposed regional IRM strategies nor the existing IRPs have the force of law, these regional plans are said to merely guide resource development (Kennett, 2002; Ross, 2002). Furthermore, as the government's most recent IRM policy is intricately connected to a complex framework of other resource management policies and does not currently provide a means to coordinate the resource-specific legislation governing public land management, Alberta's land management legislation is predicted to continue to resemble an uncoordinated "patchwork quilt" (Kennett & Ross, 1998) of natural resource policy and legislation (Kennett, 2002; Ross, 2002). The government of Alberta is currently lacking a public land law tying together the normative and legal foundation of all existing resource management policy and legislation (Kennett & Ross, 1998; Kennett, 2002).

This research attempts to understand how the inter-firm IRM programs have been able to fit within an already fragmented approach to land management in Alberta. It also explores how the policy framework governing natural resources in Alberta is perceived to impact companies that are trying to implement these plans. The policy reviews discussed

above suggest that the provincial IRM policy regime is likely to challenge voluntary environmental strategies in the natural resource sectors, as their most basic operations on public land must adapt to a number of other land uses each guided by an independent set of policies and regulations.

INTER-ORGANIZATIONAL COOPERATION

Although the policy regime may have an influence on voluntary IRM initiatives, integrated resource planning also depends on firms from the oil and gas and forestry sectors being able to meet and discuss plans for future development. Hence, integrated resource planning requires the close cooperation and coordination of separate organizations. There is an extensive body of literature on inter-organizational cooperation discussing the characteristics of such relationships.

Cooperative relationships are defined as "socially contrived mechanisms for collective action, which are continually shaped and restructured by actions and symbolic interpretations of parties involved" (Ring & Van de Ven, 1994). Similar to cooperation, coordination is where two or more organizations agree to use similar decision rules for collective action (Mulford & Rogers, 1982). There is a large body of research on the topic of inter-organizational cooperation; thus the following discussion will highlight the more important concepts relating to the antecedents and barriers to cooperation.

Collaborative relationships are built on a mutual interdependence, where needs or interests intersect (Gray, 1985). Ultimately, the goal of any cooperative relationship is to acquire mutual benefits (Ring & Van de Ven, 1994). Cooperation, for the attainment of mutual benefits, can be explained using the theories of social exchange (Blau, 1964; Smith, Carroll, & Ashford, 1995). Social exchange is the voluntary exchange of benefits resulting in cooperative relationships; cooperative relationships based on exchange have the ultimate goal of maximizing the intrinsic and extrinsic rewards of the relationship

(Blau, 1964; Smith et al., 1995). Hence, the cooperative relationship is initiated and sustained through the reciprocation of benefits and awards and maintained through the formation of future obligations among partners (Blau, 1964).

There are practical considerations in the formation of cooperative relationships. Most importantly cooperation must fulfill an organizational goal (Halpert, 1982). Inter-organizational cooperation may, for example, arise out of a need to share or reduce costs (Mulford & Rogers, 1982). Similarly, members of organizations may want to increase organizational knowledge by drawing on a pool of resources generated by partner organizations (Gray, 1985). Another important practical consideration is the degree to which members of organizations are aware of the effects of their actions on other organizations (Ibid.). When members of organizations are aware of these effects, they ultimately recognize their interdependence with external organizations and may then be able to identify opportunities for collaboration (Ibid.). Geographic proximity is also a practical requirement in the formation of cooperative relationships, as partners who are close to each other are more likely to maintain regular contact (Halpert, 1982). Moreover, the quality and quantity of communication between partners is central to successful cooperative relationships (Ibid.). Finally, organizations engaging in cooperative relationships must have similar styles of decision making and modes of operation to make joint decisions, that is they must have similar authority and planning structures, and their operations must be sufficiently compatible (Ibid.).

Ultimately, cooperation arises when partners are dependent on each other for resources, but the relationship is also highly dependent on aspects central to good relationships, specifically commitment, trust and mutual control (Blau, 1964; Ring & Van de Ven, 1994). Trust between partners is said to be cumulative; it is gained over time and strengthens with increases in productive exchange relationships (Ibid.). Commitment of both partners is also important to cooperation, as partners must be willing to continue the

relationship and fulfill their obligations (Smith et al., 1995). Finally, productive relationships require all partners to be satisfied with their degree of control over the relationship as well as the overall distribution of power (Ring & Van de Ven, 1994). Prior to the formation of a collaborative relationship, leaders may consider the implications of sharing of power and influence over their domain with another organization (Selin, Schuett, & Carr, 2000).

Factors external to the partners themselves can influence cooperative relationships. For instance, interdependence between organizations is important in 'turbulent' environments, where external conditions are unpredictable and as such, organizations must collaborate in order to adapt to changing conditions (Gray, 1985 p.112). Governments, a key actor in the external environment, can play a vital role in both impeding and enhancing opportunities for inter-firm cooperation. Nakamura et al (1997) argue that governments provide incentives for cooperation but also increase the cost of forming and sustaining cooperative relationships. For example, policies, bureaucratic infrastructure, investment programs and moral suasion can act as either barriers or incentives for cooperation (Nakamura, Vertinsky, & Zietsma, 1997). If any of these factors increase the transaction costs associated with inter-organizational cooperation, then organizations are less likely to form cooperative relationships. If transaction costs are reduced, however, then organizations may be more willing to form cooperative relationships. Government actions can influence inter-organizational cooperation in another fashion. Specifically, if organizations face external constraints on their operations and the government is not willing to assist them, they may seek assistance from other organizations facing similar constraints (Mulford & Rogers, 1982).

To summarize, previous research identifies several factors responsible for complicating cooperative relationships. If factors central to good relationships are absent or weak then cooperative relationships are unlikely to form or last. There are practical

considerations as well. For example, if the partnership is deemed overly costly then the relationship is likely to fail. Additionally, as discussed above, there may be external constraints imposed by governments that challenge inter-organizational cooperation or weaken existing relationships. For example, changes in consumer demand or the political environment may also make relationships riskier or non-profitable.

The literature review on corporate environmental responsiveness presented in this chapter examines some of the primary incentives for greening. There is a significant gap in the research on corporate environmental responsibility, however, as the literature recognizes the role of certain incentives on corporate environmental practices but has failed to explore the influence of possible challenges. It is conceivable that even in the face of certain incentives there may be factors that challenge a firm's ability to improve its practices. Furthermore, the corporate greening literature has focused almost exclusively on companies involved in manufacturing. Although manufacturing processes can be harmful to the environment, resource extraction also has significant environmental impacts that are distinct from those associated with manufacturing processes, and is worthy of greater attention in the corporate greening literature. The challenges and opportunities for greening in the natural resource sector can be expected to be unique compared to those of the manufacturing sector. The forestry industry, for example, is evaluated not only on the manufacturing processes for pulp and lumber production, but on the quality of its land base where extraction occurs. While a manufacturing facility is normally within the control of the corporation, a land base, particularly public land, is controlled by a host of other actors including the state, the public and other resource users. Hence, in order to implement a land management goal, a forest company's objective must be compatible with all these other actors' goals.

The next chapter provides some context and background on the two case study areas examined in this thesis research project. A discussion of the notion of IRM and an overview of Alberta's natural resource policy regime are also provided.

3. CASE STUDY DESCRIPTION

This chapter provides the context and background for the concept of integrated resource management, Alberta's natural resource policy regime, and the two case study areas. One case study region is the Alberta Pacific Forest Industries (Al-Pac) Forest Management Agreement area. In this region, the forest company Al-Pac, along with three oil sands companies, Conoco Canada, Nexen Canada and TrueNorth Energy, has developed a series of inter-firm IRM programs. The other case study is the Weyerhaeuser Forest Management Agreement region, where there are no proposed inter-firm IRM programs. A map of these regions is provided in Appendix A. Both case study regions are characterized by multiple resource extraction and the forest companies involved are considering adopting an IRM approach to land management. As such, an understanding of the system behind natural resource rights dispensation, as well as the history of IRM policy in Alberta is essential in developing a social, political and historical picture of both these case study regions. I will describe these aspects of the case study regions with a particular emphasis on the oil and gas and forestry sectors.

THE BASIC PRINCIPLES OF INTEGRATED RESOURCE MANAGEMENT (IRM)

In general, IRM (also known in the literature as Integrated Environmental Management) is the coordination of various land users to achieve a landscape level or regional management goal (Margerum & Born, 1995; Margerum, 1997; Hanna, 1999; Hooper; McDonald & Mitchell, 1999; Margerum & Born, 2000). IRM has become a relatively popular natural resource management paradigm, favored over traditional top-down approaches to land management (Margerum and Born, 1995). Much of the research on IRM refers to the improvement of social, ecological and economic well-being as its central goal (Mitchell, 1986; Margerum & Born, 1995; Margerum, 1997; Margerum & Born, 2000). At the very least, IRM is considered a means to increase environmental

sustainability (Margerum & Born, 1995; Hanna, 1999; Hooper & McDonald, 1999). IRM initiatives tend to emphasize maintaining some degree of resource use[3] and ecosystem health over the long term.

As the goals of this type of management strategy apply to a large area such as a watershed, it usually involves the cooperation of a large and diverse group of land users (Hooper & McDonald, 1999; Margerum & Born, 2000) and experts in land management (Walther, 1987). IRM can constitute a variety of interactions among individuals and groups and has not been encapsulated into a single, generic model (Margerum & Born, 1995). Academic and practitioner research tend to focus on the implementation of IRM, which appears to be most commonly initiated at the government level in conjunction with the input and assistance from various user groups (Margerum & Born, 1995). The nature of non-governmental initiatives such as inter-firm IRM has not yet been explored in the literature. The following description of Alberta's natural resource policy regime will describe the structural environment in which IRM initiatives undertaken in this province must adapt.

ALBERTA'S NATURAL RESOURCE POLICY REGIME

In Alberta, most of the land with multiple resource development is public—or Crown—land. With the exception of Indian reserves, national parks and other federally controlled land, the provincial government is responsible for allocating resource rights and charging resource rents on all public land, and investing these funds in the public interest.

Resource rights are allocated on a resource-by-resource basis. As such, a single unit of public land can be conceptualized as a bundle of resource rights, where rights are allocated to separate users. Adding to the complexity of this bundle of rights, each resource has its own set of legislation specifically tailored to its unique management

[3] 'Use' refers to both consumptive and non-consumptive uses.

requirements. Consequently, public land is utilized by multiple parties, each subject to a distinct policy regime. The following section describes the policy regimes of two important and distinct types of natural resources: forestry and oil and gas.

Overview of Forest Tenure Agreements

Resource tenure agreements for timber are governed by the *Forests Act* and differ according to their comprehensiveness, exclusiveness, duration, transfer, and benefits incurred (Ross, 1995). In general, the provincial government disposes of timber rights through a legally binding agreement after negotiating with an interested user (Ross, 1995). Tenure is allocated separately for deciduous and coniferous timber, and agreements are either area or volume based. Volume based agreements, such as timber quotas, volume licenses or timber and cutting permits, allocate a certain volume of timber to a user. Holders of volume based agreements have very few land management responsibilities, as the government typically assumes responsibility for overall land management (Ross, 1995).

In 1954, the first area based agreements, called Forest Management Agreements (FMAs), were introduced in Alberta. FMAs are long-term arrangements allocated on a twenty-year renewable basis. They allocate timber rights within a large geographic area, and the volume of timber extracted under this agreement is limited by an Annual Allowable Cut (AAC). Under an FMA, the forest company is deemed the 'landholder' and must develop management plans to "simultaneously protect and provide for integrated management of other forest resources" (Ross, 1995 p.118). The company is also responsible for mitigating the impacts affecting other values associated with the forest resource, while management *for* these values is the responsibility of the province (Alberta Environment, 1998). To ensure that timber is processed once it is harvested, FMA holders are required to either construct a wood processing facility or enter into an

agreement with an existing facility (Ross, 1995). Forest companies must also consult with the public prior to and throughout the lifetime of the tenure agreement. As a result, most forestry companies in Alberta have established public advisory committees responsible for providing feedback on the company's practices. As of 2002, the province had fourteen FMAs in the northern region of the province, including the Al-Pac FMA and the Weyerhaeuser Slave Lake FMA (refer to Appendix A for a map of FMAs in northern Alberta).

Pulp production has had a dramatic impact on economic growth and employment in Alberta (Natural Resources Canada, 1990 p. 15; Natural Resources Canada, 2000 p. 27) as well as on the forested landscape. Since the late 1980s timber production in Alberta has accelerated rapidly as the government realized the potential for large-scale pulp developments in the northern boreal forest. As a result, a region with relatively little industrial forest development in the mid-1960s had eleven large area-based forest tenure agreements by 2000 (Schneider, 2000 p.3). The combined area of the five largest FMAs total almost 173,000 km^2 (Schneider, 2000 p.3). Analysis of annual harvest rates from forestry developments suggest that the volume of timber extracted has nearly tripled from 1985 to 2001. Accordingly, the economic contributions from the forest sector have more than doubled from 1987 to 1996, making it one of the province's more important resource sectors (Alberta Treasury, 1998). Owing to the importance of this industry and a well developed network of supporting infrastructure, the provincial government has expressed a desire to increase timber production in the future (Alberta Resource Development, 2002).

Overview of Oil and Gas Tenure Agreements

Oil and gas development is undoubtedly the most important natural resource sector in Alberta. The provincial government owns approximately 81% of mineral rights in

Alberta (Patriquin, Wellstead, Alavalapati, & White, 1998 p. 14) and consequently controls the purchase of rights to develop oil and gas resources. The *Mines and Minerals Act* and the *Public Lands Act* are the two main statutes governing the allocation of subsurface and surface rights for oil and gas resources (Ross, 2002). The extraction of oil and gas is divided into several stages: exploration, sale of rights, and development of the resource. Companies will usually assess the productivity of a region prior to requesting that rights are sold. This process of geophysical exploration for oil and gas does not require a formal tenure agreement; however exploration usually requires approvals for the associated land disturbance. Once productivity has been determined, the government offers the right to the resource by public tender through a competitive bidding process. The highest bidder is then granted the subsurface rights to the resource. When deciding whether to allocate subsurface resources in a particular area to interested users, the government does not consider the impacts of proposed allocations on other land users, and thus conflicts between incompatible activities are sorted out after the fact (Ross, 2002).

The government allocates subsurface rights to extract crude petroleum, natural gas and oil sands with five, ten, or fifteen-year tenure agreements (Patriquin et al., 1998 p.15). The period of the license for well sites can be extended as long as the licensee can validate the productivity of the well (Ross, 2002) and there is no obligation to produce if the company determines that it is not economically feasible.

Once subsurface rights are obtained, companies must seek approvals for surface rights, in order to access the resource and establish development infrastructure. Oil sands leases have the most comprehensive review prior to development, as they are large area-based developments with long-term agreements. Unlike conventional oil and gas developments, oil sand mines require an Environmental Impact Assessment (EIA) and normally undergo a formal public hearing, allowing members of the general public to

voice any concerns. Prior to acquiring surface rights, oil and gas companies are required to notify and consult with parties likely to be affected by their developments and address any concerns. The public may also appeal a development through an Energy and Utilities Board appeal process, which may require a formal hearing. When oil and gas development results in the removal or damage of surface property or resources held by other users, companies must compensate whoever holds the right to the property or resource (Patriquin et al., 1998). This stage is particularly crucial for collaboration between oil and gas and forestry companies, and is described in more detail below. Finally, oil and gas developers must obtain approvals for all new infrastructure required to develop, produce and transport resources, such as roads, production facilities, pipelines and well sites.

For conventional oil and gas, the time frame for development—that is between exploration and extraction of the resource—is usually a year. Oil sand development has a much longer time frame owing to the EIA process and the scale and complexity of the infrastructure required for development. Oil sands operations often take several years to commence, and development may last several decades (National Task Force on Oil Sands Strategies, 1995).

The oil and gas industry has been particularly lucrative for the province of Alberta in part because of its geological position in the Western Canadian Sedimentary Basin, a productive region for oil and gas. The northern area of the province, comprising the boreal forest, has significant extractive activity (Patriquin et al., 1998). Accordingly, the province has an extensive network of infrastructure supporting oil and gas development. As of 2000, the province had almost 100,000 wells, over 250,000 kilometres of pipelines, and almost 700 gas plants (Alberta Resource Development , 2000 p.31). Furthermore, large oil sands deposits, equalling an area roughly the size of Scotland, have been developed extensively since late 1960s (National Task Force on Oil Sands Strategies,

1995 p. 9-10) creating immense open mine areas and concentrations of well sites for in-situ developments. Extraction of oil and gas resources is growing rapidly owing to international energy demand, combined with improvements in extractive technology enabling the efficient extraction of previously inaccessible pools. Infrastructure and development of the province's oil and gas industry will only continue to increase in the future, particularly as it is the province's most lucrative industry and is a high priority area for further development (National Task Force on Oil Sands Strategies, 1995; Alberta Treasury, 2001; Alberta Finance, 2002).

Integrated Resource Management Policy

The province of Alberta has almost thirty years of experience with multiple resource management in the form of IRM. In the late 1970's, the government of Alberta released a policy statement describing its intent to implement a planning process to better coordinate multiple use activities on the province's public land. This policy was implemented through regional Integrated Resource Plans (IRPs). Like the policy that created them, these plans mandated a comprehensive planning approach involving the classification of regions of the province into different compatible use zones, where certain zones allowed very little industrial development and others allowed extensive development (Kennett & Ross, 1998). The IRP policy was based on a model of efficient and logical resource planning and utilization, and emphasized the wise use of the province's resources as well as the optimization of resource benefits to citizens of the province. Over a dozen IRPs were implemented in several different regions of the province. The integrated resource planning process has gradually been phased out in Alberta.

In 1999, the government revived the IRM policy through the release of a policy statement entitled *Alberta's Commitment to Sustainable Resource and Environmental Management*. This policy states the government's renewed commitment to IRM (Alberta

Environment, 1999). It outlines a general vision for an integrated approach to resource management and appears to promote industry-initiated integrated resource planning. As a step toward implementing this policy, the provincial government has developed a series of pilot regional strategies aimed at assessing the feasibility of province-wide IRM. Providing they are successful, the government intends to replace IRPs with these new regional strategies (Alberta Environment, 2000).

On the Ground: Description of Interactions between Oil and Gas and Forestry Sectors

Owing to the multitude of land uses on public land in Alberta, and the extent to which forestry and oil and gas activities pervade the landscape, these two sectors often overlap. The nature of their operations and the associated impacts on the land base are fairly distinct. Timber extraction results in significant surface disturbance for the removal of timber or creation of sites for production facilities, as well as linear disturbance for the construction of roads. Oil and gas exploration, on the other hand, results in significant linear surface disturbance for seismic exploration, road and pipeline construction, as well as the creation of open areas for resource extraction and production facilities.

At almost every stage of development, from exploration to the delivery of resources to production facilities, these two sectors compete for land. An oil and gas company, for example, may want to build a well site in a specific area owing to its production potential, while a timber company may have planned to use the same area for timber extraction and subsequent regeneration. These activities are not easily integrated, as an oil well can run for several years and until it is reclaimed to its original condition, it cannot produce timber. In the case of pipelines, the area above the buried pipe must be kept clear of woody vegetation and is thus not available for timber production until the pipe is removed and the area reclaimed.

The provincial government provides guidelines that companies from both sectors must follow when operating on the same land base. Before exploration and development, oil and gas companies are required to notify the landholder of the region. When timber rights have been allocated to an FMA holder, the oil and gas company must contact the FMA holder and obtain consent before beginning development. According to discussions with land-use coordinators from two FMA areas in northern Alberta, if it is feasible, the timber company will often try to salvage timber removed by the oil and gas industry. Long term timber removals, such as roads, pipelines and well sites, require the oil and gas company to compensate the FMA holder based on a standardized measure of compensation called a Timber Damage Assessment.

Most FMA holders will hire a land use coordinator who is responsible for coordinating their companies' operations with those of the oil and gas industry. This coordinator will handle applications for development from an oil and gas company's surface land manager. Under resource law, the FMA holder is responsible for granting permission to oil and gas companies to develop in their FMA (Ross, 2002). In some cases, prior to oil and gas development, oil and gas and timber companies will agree to share roads or place pipelines next to existing roads in order to minimize surface disturbance. At this stage of development, government provides very little guidance or direction on how to collaborate. This research project is focusing on a broader form of coordination, beyond the coordination of individual well sites and roads, to include co-development at a landscape level and over the long term, as in the case of the Al-Pac FMA, described below.

DESCRIPTION OF CASE STUDY AREAS

This thesis project studied two case study areas, one area with very limited landscape level inter-firm IRM and another area with substantial proposed landscape level inter-

firm IRM. The rationale behind the case study selection is described in the Methods chapter of this thesis. In general, case study regions were chosen using FMA delineation and were based on the different stages of development of inter-firm IRM programs. Specifically, Al-Pac is currently implementing IRM strategies along with three separate oil sands companies, while Weyerhaeuser Canada in Slave Lake has expressed interest in adopting inter-firm IRM programs but has made little progress. The following is a description of the two case study areas.

Without Landscape-level Integration: the Weyerhaeuser Forest Management Agreement Area.

The Weyerhaeuser FMA is located in the northwest boreal region of the province (Weyerhaeuser Canada, 1998 p.15). The area of this FMA is 666,321 hectares (Weyerhaeuser Canada, 1998 p.15). The FMA has been divided into two separate sections, one large area north of the town of Slave Lake and a smaller area south of town. This Slave Lake FMA region has been developed extensively by forestry, conventional oil and gas and agriculture. Although oil sand deposits exist inside the FMA area, it is not feasible to develop them at present, hence conventional oil and gas is the major petroleum activity on the land base.

Weyerhaeuser operates an oriented strand board (OSB) mill near the town of Slave Lake. As of 2002, the mill employed 150 staff, including full-time, part-time and forestlands employees. Weyerhaeuser purchased the OSB mill in 1986 from Alberta Aspen Board and was granted the FMA in 1992 (Canada's Climate Change Volunteer Challenge and Registry Inc., 1996; Weyerhaeuser Canada, 1998). Before the purchase by Weyerhaeuser, timber quota holders had already developed the area. At present, the Weyerhaeuser company has been granted the right to harvest deciduous timber from the FMA while two timber quota holders, Zeidler Forest Industries Ltd. and Vanderwell Contractors Ltd, have the coniferous rights (Weyerhaeuser Canada, 1998 p.38).

Weyerhaeuser is an American firm headquartered in Tacoma, Washington. Weyerhaeuser holds three other FMAs in northern Alberta, in addition to the Slave Lake FMA, making it a significant player in the Alberta forestry sector. Products from the Slave Lake OSB mill are exported to other regions in Canada, the United States and overseas (Canada's Climate Change Volunteer Challenge and Registry Inc., 1996). Hence, fluctuations in international markets from changing demand and timber prices are of key importance to this company.

Weyerhaeuser has made a stated commitment to IRM. For example, in its Detailed Forest Management Plan (DFMP), there are two sections outlining general actions to encourage IRM. The company states that it will honour decisions made by the government's integrated resource plans and work cooperatively with other resources users on the FMA (Weyerhaeuser Canada, 1998 p.38)

Description of Current Integrated Planning Initiatives

Despite a stated commitment to participation in IRM programs, on the ground there has been minimal landscape level integration. Integration with other timber quota holders and conventional oil and gas companies has tended to occur on an ad hoc basis. In certain cases Weyerhaeuser has been able to harvest timber after it has been cleared by oil and gas developers and share roads with these developers. However, the company has not yet been able to engage in a landscape level integration with conventional oil and gas operations, where both companies co-plan a series of developments over a larger landscape.

First Nation Communities and Land Claims

Several Treaty 8 First Nations communities are found around the Weyerhaeuser FMA area. These communities include the First Nations' reserve of Grouard (Kapawe'no) within the FMA, and the Wabasca Reserve and the Sawridge Reserve, which are just

outside the FMA area. There are several Treaty and Entitlement Claims outside the FMA region, including the Whitefish Lake, Kapawe'no and Bigstone Cree claims (Aboriginal Affairs and Northern Development, 2001).

Presence of Landscape Level Integration: Alberta Pacific Forest Industries Forest Management Agreement Area

The Al-Pac FMA is located in northeastern Alberta, south of Fort McMurray, east of Slave Lake and just north of the town of Athabasca. It is the largest FMA in Alberta, at 53,000 square kilometres (Alberta Pacific Forest Industries, 2000 p.2). Near the town of Boyle, Al-Pac runs North America's largest single line kraft pulp mill (Alberta Pacific Forest Industries, 2000 p.2). As such, forestry is a significant industry in the area; however other industries are also present, particularly conventional oil and gas, oil sands and agriculture. Al-Pac's early development in Alberta was fairly contentious, as local members of the community, members of certain First Nations communities and environmental organizations were opposed to the provincial government's proposal to allow a large scale pulp development in an area that had previously seen little industrial forest development (Pratt & Urquhart, 1994). Nevertheless, after lengthy and contentious environmental impact assessment hearings, the mill started up in 1993 (Alberta Pacific Forest Industries, 2000 p.2).

Alberta Pacific Forest Industries Inc. is the agent and operator of the pulp mill and has been commissioned by the owner of the FMA, Al-Pac Forests Products Incorporated. Two companies based in Japan own this company: the Mitsubishi corporation (70% ownership) and the Oji Paper Company (30% ownership) (Alberta Pacific Forest Industries, 1999; Mitsubishi Corporation, 1998). Like Weyerhaeuser, Al-Pac also exports its pulp to buyers in the United States, Europe and Asia and is susceptible to fluctuations in the market for forest products, namely pulp. Currently, Al-Pac employs 440 permanent employees at their mill site. The company has been allocated both coniferous and

deciduous rights; however there are quota holders who also have a share of the timber in the FMA area.

Al-Pac has a record of environmental achievements and appears to be seeking recognition as an environmentally responsible forest operator. The company has received the province of Alberta's Emerald Award—an environmental excellence award—in 1999 and 2000, and a Forest Stewardship Recognition Award from Wildlife Habitat Canada in 2000 (Alberta Pacific Forest Industries, 2000 p.2). Al-Pac has also publicly stated its intention to consider Forest Stewardship Council certification, considered one of the more rigorous forestry environmental certification programs (Alberta Pacific Forest Industries, 2002).

Like Weyerhaeuser, Al-Pac also has a stated commitment to IRM appearing in its DFMP. First, it states that it will adopt a model of forest management promoting the coordinated management of multiple resource systems and will view forest management in an ecosystem context (Alberta Pacific Forest Industries, 1999 p. 6). Second, it states that it will honour the intent of existing IRM plans and assist with the development of future plans (Ibid.).

Description of Current Integrated Planning Initiatives

Al-Pac has proposed a number of landscape-level integration programs with several different oil sands companies. Al-Pac is calling these programs "Integrated Land Management" and is connecting these programs to related initiatives under the Alberta Chamber of Resources (Alberta Pacific Forest Industries, 2002). Al-Pac has proposed Integrated Land Management programs with at least three major oil sands operations operated by Conoco Canada, Nexen Canada and TrueNorth Energy, respectively. The Conoco and Nexen projects are proposed "SAG-D" operations where steam is injected into deposits to extract bitumen, using an extensive network of well sites (Nexen Canada

Inc., 2002). The TrueNorth project, on the other hand, is a proposed surface mining operation.

Specifically, these projects involve cooperative planning between Al-Pac and its oil sands partners to coordinate road networks and logging operations prior to the development of infrastructure for bitumen extraction. Al-Pac and its oil partners plan to share the cost of building road networks, allowing Al-Pac to clear and harvest all of the timber prior to the development of the extraction and production facilities.

There are several benefits of this planning approach. First, the number of roads in the area is reduced, as Al-Pac and its oil sands partners can share roads rather than having redundant, separate networks. Second, the timber can be hauled to Al-Pac's mill, allowing the company to plan its harvest to include areas already slated for timber removal owing to oil production. The cited benefits of the program include a partial reduction in the ecological "footprint" of resource extraction in the boreal forest (Nikiforuk, 2000) and significant cost savings (Alberta Pacific Forest Industries, 2002).

In addition to the Integrated Land Management programs, Al-Pac has also created an incentive program aimed at reducing the width of seismic lines created for geophysical exploration. The company has decided to forgo compensation for timber lost through the creation of seismic lines, as long as lines are two and a half metres wide, rather than the standard five to eight metres. The cited benefits of smaller seismic lines are a reduction in forest fragmentation and volume of cleared timber (Pope, 2001).

First Nation Communities and Land Claims

A number of First Nations communities are located within the FMA area, as well as just outside the FMA. The Clearwater, Fort McKay, Gregoire Lake, Heart Lake, Janvier, and Winnifred Lake First Nations reserves are located within the FMA. The Namur Lake, Utikoomak Lake, and the Wabasca reserves are just outside the FMA region. There are

several Treaty and Entitlement Claims outside the FMA region, including the Bigstone Cree, Fort McMurray, Fort McKay and Janvier First Nations claims (Aboriginal Affairs and Northern Development, 2001).

4. METHODS

This study uses a qualitative research approach. Qualitative research involves an inductive process where concepts are developed as findings are being gathered (Neuman, 2000). Data gathered from qualitative research is not always converted into a single format such as numbers, but is based on key themes and ideas that emerge from the research (Neuman, 2000). The qualitative research approach is most appropriate for this particular thesis project, as its purpose is to describe the range of incentives and constraints influencing the actions of Al-Pac/Conoco, Nexen Canada and TrueNorth Energy (ACNT) and Weyerhaeuser Canada without reducing the findings to a hypothesis test. A deductive approach has the disadvantage of selecting theories or hypotheses prior to the research process, confining the rest of the research process to these theories alone. A qualitative, inductive approach, on the other hand, generates themes, concepts and theories *during and after* data have been gathered, so as to ensure that a full range of phenomena are explored (Neuman, 2000).

Four possible challenges to industry-initiated integrated resource planning: the policy framework governing natural resources, lack of government support for integration, the provincial economic framework, and firms' ability to cooperate with other operators on the land base were identified during the first phase of the research project and are described briefly below. These four themes guided the second phase of the research, which employed a structured interview questionnaire applied to two distinct case study regions. The second phase of the research is the most important phase and comprises the greater part of this Master's thesis.

PHASE I: EXPLORATORY RESEARCH

The first phase of this research was conducted from September 2000 to October 2001. This phase consisted of a thorough review of key policy and legislative documents

relating to natural resource and land management in Alberta, as well as interviews with knowledgeable personnel in government, forestry and oil and gas industries, environmental non-governmental organizations (ENGOs) and First Nations communities. Forestry and oil and gas policy, legislation and regulations were the main focus of the policy review. The content of these documents allowed me to form a broader understanding of how the oil and gas and forestry sectors operate in Alberta. The results of this policy review were used to inform the section describing Alberta's natural resource policy regime, which can be found in the Case Study Description chapter, as well as in the Literature Review chapter under the section describing IRM policy critiques in Alberta.

Exploratory Interviews

Exploratory interviews were designed to elicit information on key issues influencing inter-firm IRM in Alberta. The interview questionnaire consisted of several open-ended questions conducted using face-to-face interviews where respondents were asked to expand on their perspective of the opportunities and constraints facing inter-firm IRM programs and government IRM initiatives.

Interviews were conducted with thirty-one representatives from key government agencies, ENGOs and oil and gas and forestry companies, as well as First Nations communities in Alberta. Specifically, five forestry respondents, three First Nations respondents, twelve government respondents, four ENGO respondents and seven oil and gas representatives were interviewed. Respondents were chosen using a purposive and snowball sampling technique. With purposive sampling the researcher chooses respondents based on their level of expertise and knowledge of a particular area (Neuman, 2000). Snowball sampling is where respondents are identified according to their linkages with other respondents in a greater social network (Neuman, 2000).

Specifically, respondents who were involved in government or inter-firm IRM programs were contacted for an interview and then asked to suggest other key actors who have a similar perspective to theirs, as well as those may hold a different perspective. Respondents were contacted several weeks in advance by e-mail or telephone and an appointment was arranged at a mutually convenient time. Interviews lasted an hour to an hour and half and were conducted in the respondent's office or at the University of Alberta. I conducted the interviews along with another graduate student studying provincial IRM initiatives. Interviews were tape recorded and transcribed by myself and the other graduate student.

Data Analysis

After the interviews were transcribed, the text from each interview was coded, where codes were linked to various conceptual categories, later refined into specific themes. Codes "are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study" and are attached to blocks of connected or unconnected text, either specific words, sentences or paragraphs (Miles & Huberman, 1994 p.56). Coding is a process where the researcher reads through a body of text (such as an interview transcript) and assigns meaning to relevant sections. There were several "layers" of coding: open, axial and selective. Open coding is the initial locating of themes (Neuman, 2000). During this stage, the researcher reads through the interviews looking for major themes. Keeping with a qualitative research approach, during this stage of the coding, I did not confine coding to a strict conceptual framework. Rather, conceptual categories emerged during the coding process. Axial coding involves assigning code labels to themes (Neuman, 2000). During this stage, I allocated chunks of text to a category describing the content of the text (e.g. 'Respondent's job description' or 'Perceived problems with oil and gas policy'). Selective coding is used to select themes

of interest and compare data from one theme to another (Neuman, 2000). During this stage, I interpreted the content of each code and compared across codes to find overlapping themes. Themes were then linked to broader conceptual categories and subsequently compared across categories of respondents to see if responses varied according respondent's institutional affiliation. Finally, a set of major themes, both at the descriptive and conceptual level, was generated.

Interviews were coded using the NVivo 2.0 qualitative data analysis software package. NVivo allows one to systematically read through an interview and select portions of text to define under themes, called 'nodes'. Nodes can be multileveled, forming 'trees' or can be stand-alone. After interviews are coded, the analyst can review the content of each node—or theme—and quantify the number and category of respondents expressing each theme. NVivo allowed me to organize data in a format that could be more easily and systematically analyzed.

Four major themes were found during phase one:

1. The policy framework and system of governance within which natural resource extractive firms are working was perceived to be complicating inter-firm IRM. Specifically, respondents felt that the difference in planning horizons and timelines for oil and gas and forestry development as well as the pace of petroleum and natural gas development were restricting opportunities for cooperative resource planning.
2. Respondents felt that the government was not actively encouraging or facilitating integration.
3. Respondents perceived that successful inter-firm IRM programs depended on resource firms' ability to cooperate with other operators on the land base. Respondents listed corporate culture, geographic proximity and size of the corporation as key factors influencing cooperation.

4. Alberta's dependence on the oil and gas industry and the desire to maintain development from this industry was perceived to significantly influence natural resource management decision-making and policy.

These four themes were used to inform the case study phase of the thesis project, as themes from exploratory interviews formed the conceptual basis for the structured interview questionnaire.

PHASE II: CASE STUDIES

The second phase of the project was conducted from May to September 2002. This phase involved an analysis of two regions experiencing different levels of inter-firm resource management integration. This phase of the project forms the greater part of this Master's thesis and major findings are described in the Results chapter of this thesis.

Case Study Research Sites

The second part of the project compares two case studies in industry-initiated integrated resource planning. Specific details on the two case study regions are presented in the Case Study Description chapter. The purpose of the comparative case study is to understand the possible external and internal incentives and challenges influencing resource industry firms' participation in inter-firm IRM initiatives.

Key actors in both these case studies were interviewed to generate first-hand information relating to factors influencing inter-firm IRM programs. Respondents were asked to identify their understanding of the possible incentives and challenges influencing industry-initiated integrated resource planning. I analyzed data from the interviews, and the results were used to describe the range of incentives and barriers influencing industry-initiated integrated resource planning.

These two research sites were chosen for several reasons. First, companies from both areas have adopted internal management policies that support the basic premise of IRM.

Second, each case study area is at a different stage of development of inter-firm IRM. In the Al-Pac FMA, several initiatives are being planned and will soon be undertaken with three separate oil sands companies: Conoco Canada, Nexen Canada and TrueNorth Energy. Comprehensive inter-firm IRM planning has not yet taken place in Weyerhaeuser Slave Lake FMA. Third, both companies operate FMAs in northern Alberta, which encompass a significant land area and are under the company's and the provincial government's management control. For the most part, research took place in the general vicinity of the FMA; however, some research took place in the city of Calgary in the headquarters of key oil and gas companies operating in the two case study regions and in the city of Edmonton at the University of Alberta.

Research Instrument

Data was collected using a semi-structured interview questionnaire conducted using face-to-face interviews. An interview questionnaire was generated for each case study region and category of respondent. A copy of the interview questionnaire can be found in Appendix B. Interview questions were designed to reveal the perspectives of personnel from Al-Pac and its oil and gas partners, as well as Weyerhaeuser and the oil and gas companies operating in its FMA. Interview questions for personnel from each of the companies within ACNT focused on the range of incentives and barriers respondents perceive to have influenced their company's participation, or lack thereof, in the integrated land management projects. A number of questions were designed to gather more information on the themes generated during the first field season. Other questions were based on a review of the literature on corporate greening and inter-organizational cooperation. In general, respondents from ACNT were asked to identify means for overcoming external and internal opportunities and constraints to landscape level integrated resource planning initiatives. Personnel from Weyerhaeuser and key oil and

gas companies operating in the Weyerhaeuser FMA were asked to describe the range of external and internal opportunities and constraints they perceived to influence Weyerhaeuser's interest in IRM, as well as the external and internal barriers they felt have prevented the company from engaging in IRM programs.

I conducted the interviews along with another graduate student studying government-initiated IRM programs. I tried to ask all of the assigned questions to each interviewee, however, many of the interviewees had limited time to participate and often one or more questions had to be cut from the interview. During the interview, questions were clarified or broadened depending on the interviewees' understanding of the question. Interviewees were permitted to expand on ideas that emerged during the interview.

Respondents were contacted several weeks ahead of time by telephone or e-mail to schedule an interview time and location at their convenience. Interviews were recorded by audio tape and then immediately transcribed by a trained transcriber. Interviews lasted one to two hours and took place in the respondent's office or at the University of Alberta.

Sampling

Sampling Method

Respondents were chosen using two sampling methods: purposive and snowball sampling. Specifically, respondents who had been involved in or were knowledgeable about inter-firm IRM programs were contacted for an interview and then asked to provide suggestions of other key actors in their sector. Respondents met at least one of the following criteria:

1. Familiarity with natural resource management issues in northern Alberta
2. Decision making authority in natural resource management (e.g. company land managers or planners, corporate or government environmental scientists)

3. Familiarity with government regulations and legal mechanisms involved in natural resource management (e.g. managers responsible for interacting with other resource sectors, government regulators or non-governmental organizations that lobby for changes in government regulation or land management practices).
4. Company leadership (e.g. middle or high-level company managers, Chief Executive Officers, or regional presidents).

Most respondents were chosen according to the first three criteria and included personnel from both Al-Pac and Weyerhaeuser, as well as the relevant oil and gas companies operating on their FMAs. Personnel from provincial government agencies and ENGOs were also chosen for interviews. Respondents from the provincial government were chosen from departments that oversee forestry or oil and gas development and are familiar with the inter-firm IRM projects and IRM in general. Only a few government respondents were selected for interviews, owing to the relatively small number of government personnel who were directly involved in planning or supervising inter-industry IRM programs. A large number of government respondents, however, were included in the exploratory phase of the research project. Responses from ENGO representatives were chosen from interviews conducted in a separate case study being observed by a graduate student studying government-initiated IRM programs. Interview questions of interest to this project were inserted into this other case study's interview questionnaire. As many of Alberta's ENGOs have a provincial focus and mandate, ENGO representatives had some knowledge of inter-firm IRM programs, and were very familiar with key environmental issues in natural resource management in Alberta.

Description of the Sample

The sample for this thesis project was representative of the government agencies overseeing forestry and oil and gas development in the case study region, the forestry

company operating the FMA and important oil and gas companies operating in the FMA. In the Al-Pac FMA, oil and gas interviewees were selected from some of the companies involved in the Integrated Land Management projects: Conoco, TrueNorth Energy and Nexen Canada. Oil and gas companies in the Weyerhaeuser FMA were chosen from a list generated by Weyerhaeuser representatives of the key small and large oil and gas companies operating in the Slave Lake FMA. Most of the oil and gas companies making up the sample from both case study regions also have operations in other regions of the province.

ENGO respondents were representative of some of the key organizations whose activities span other regions of the province, including the two case study regions, or who have specific knowledge of IRM programs in the province. These representatives were used for two specific questions meant to evaluate their perspective on the leadership of environmental protection in the province. The rationale behind not including them in the rest of the study was that their perspective on external and internal influences on inter-firm IRM programs would not be as relevant as observations from parties actually involved in approving and generating these agreements.

Representatives from First Nations communities in the two case study regions were included in the study to ensure that some of the issues relating to the impact of multiple resource developments on First Nations communities were being explored.

In total, twenty-five individuals participated in interviews. In the Al-Pac FMA ten interviewees participated: four Al-Pac representatives, one Al-Pac senior manager, one First Nations representative, two oil and gas representatives and two oil and gas senior managers. In the Weyerhaeuser FMA eleven interviewees participated: four Weyerhaeuser representatives, one Weyerhaeuser senior manager, one First Nations representative, two government representatives and three oil and gas representatives. Four ENGO representatives were also interviewed. Of these twenty-five interviewees,

two respondents were female and twenty-three were male. Forestry personnel worked in operational planning or land management planning. Oil and gas personnel worked in environmental affairs, land management planning or operational planning. Government representatives worked in agencies approving oil and gas or forestry developments. ENGO representatives were involved to some extent in lobbying the provincial government for policy change, participating in provincial policy initiatives or participating in scientific studies in the province's boreal forest. First Nations representatives were involved with social justice and/or land management issues in their corresponding communities.

Limitations of the Sample

The sample is representative of the key actors involved in industry-initiated IRM programs, particularly when the samples from both phases of the study are considered together. The number of respondents in certain categories during the second phase, nevertheless, was limited, although this limitation was likely offset by supporting data from the exploratory phase, as well as the analysis of corporate and non-corporate documents. In the Weyerhaeuser FMA, there was a limited response from small oil and gas companies. The oil and gas sample in this FMA includes representatives of large companies, but smaller companies were not responsive to requests for interviews. In addition, senior managers from oil and gas companies are not included in the sample, as attempts to contact these individuals were frequently intercepted by 'gatekeepers' from the organization who would not provide names or contact information for these individuals. In the Al-Pac FMA, response from oil and gas companies was slightly more positive, however not all partner companies were willing to participate in the study. Consequently, only two of three partner oil and gas companies are represented.

First Nations involvement was also limited for both case study regions. First Nations representatives expressed an interest in participating in the study, but lacked the time and other resources necessary to participate in an interview.

Data Analysis

The purpose of the data analysis was to generate a set of themes reflecting the perceived incentives for and barriers to engaging in industry-initiated integrated resource planning projects. Data collection from interviews continued until there was saturation, where information began to be repetitive and was not revealing new findings (Roper & Shapira, 2000). Data analysis followed the same method described above for the first phase of the research project, where coding was assisted by a qualitative data analysis software package, NVivo 2.0, and was completed in three stages: open, axial and selective. The coding process was structured according to a conceptual framework based on the review of the literature and the themes generated during phase one. Nevertheless, during the coding process, I accommodated the emergence of unanticipated themes.

The open coding stage involved a thorough review of the interview transcripts to identify major themes. During the axial coding process, as interviews were based on a structured interview questionnaire, transcribed interview data were coded by organizing and classifying text according to the specific question under which a response emerged. Under each question, responses were then categorized further. For example, when respondents were asked who was doing the most to see if environmental concerns were being incorporated into land management, responses were categorized according to the attributed groups: 'industry', 'government', and the 'general public'. Subsequently, during the selective coding stage, data were linked to specific conceptual categories or themes. Using the same example, responses were linked to themes such as 'government

capacity' and 'government leadership in environmental protection'. Finally, data within each theme were compared across case studies and categories of respondents.

Key themes were identified using the results from this analysis and were categorized according to perceived external and internal opportunities and constraints on industry-initiated integrated resource planning programs. For example, a response that suggested the company is interested in integrated landscape management because of public pressure was classified as: 'stakeholder pressure as external influence'. Alternatively, a response that described the complications of having to coordinate activities with companies in the oil and gas sector was classified as 'inter-firm cooperation'. Many other categories also emerged during data analysis.

TRIANGULATION

Reliability, or the stability and consistency of a measurement, and *validity*, or the fit between conceptualization and operationalization (Fowler, 2002), are important considerations in this particular research project. The use of triangulation in this study, where concepts identified in one data source are verified with one or several other data sources (Neuman, 2000), strengthened both the reliability and validity of the findings. To establish the reliability of the study's findings I ensured that key concepts emerging in the interviews were also evident in other data sources such as exploratory interviews, policy critique documents, corporate documents and newspaper articles. To increase the confidence in the interpretation of interview data, I also consulted with the other graduate student studying government-initiated IRM programs to clarify and defend interpretation of the data. In addition, since two field seasons were spent collecting data, I was familiar with many of the key issues in the topic area, thereby increasing the validity of the research. Finally, I maximized opportunities to become familiar with important and emerging issues in the topic area by attending meetings, conferences and forums where

such topics were discussed.

ETHICS

The ethics protocol defined by the Faculty of Agriculture, Forestry and Home Economics research ethics board was used to guide this thesis project. The research plan and the interview questionnaires from both research phases were reviewed and approved by the Faculty of Agriculture, Forestry and Home Economics research ethics board to ensure that the study was rigorously constructed and would not pose an unacceptable risk of harm to participants.

Protocol for approaching respondents was also defined by the board. Respondents were contacted well ahead of the interview and were provided with an information sheet describing the goals of the thesis project[4]. Respondents were given the choice to participate in the interview. Before the interview, they were asked to sign a consent form stating that they understood the risks of participating in the study. During the interview, respondents were free to refuse any questions and could stop the interview at any time. Respondents were also permitted to make comments off-the-record. Once the interviews were completed, anonymity was ensured as respondents were identified by a code, rather than by name. Furthermore, in any publications, including this thesis document, respondents are identified by their institutional (government, First Nations, Al-Pac, Weyerhaeuser, oil and gas and ENGO) and case study (Al-Pac, Weyerhaeuser) affiliation. Respondents' job position within the organization is not identified, with the exception of senior managers. Finally, the transcriber was asked to sign a confidentiality agreement assuring researchers that the content of the interviews and identity of the

[4] The information sheet explained the goals of the larger research project funding this study, which included the goals of this study.

interviewees would remain confidential. A sample consent form for interviewees is provided in Appendix C.

5. RESULTS

The major themes that emerged during interviews with key actors are presented in this chapter. Responses from interviews tie into categories based on findings from the first phase of research and a review of the literature on the external and internal influences on corporate greening and inter-organizational cooperation. Interviewees explained that a number of external and internal factors influence voluntary IRM initiatives. The limited capacity of government land management bureaucracies and the structure of the natural resource policy regime were two key external factors respondents believed to be complicating inter-firm IRM programs. The influence from other external actors such as industry associations and stakeholders were not perceived as significant. Several important internal factors were identified by respondents, such as support from corporate leaders, as well as the necessary human resources and planning time to engage in IRM programs. Furthermore, inter-firm IRM programs were perceived as having many benefits and posing few risks to the company. Factors constraining and facilitating inter-organizational cooperation were also identified. Respondents believed that cooperation was most difficult during initial planning phases but was relatively straightforward once planning had begun.

Under each of the themes, brief excerpts from interviews are provided in order to illustrate better the interviewees' responses. As well, in some cases, responses have been quantified indicating the number or proportion of respondents from each case study (Al-Pac and Weyerhaeuser) and category of respondent (industry[5], Al-Pac or Weyerhaeuser representatives, oil and gas representative, government, ENGO, First Nations) agreeing on specific themes. Because respondents in the same category were not always asked the same number of questions, the quantification of responses is not of great importance, but

[5] *Industry* indicates respondents from either the Al-Pac, Weyerhaeuser or oil and gas companies. To protect the anonymity of the respondent, in some cases this label is used rather than *oil and gas*, *Weyerhaeuser* or *Al-Pac*.

rather the content of themes themselves and differences among categories of respondents and case study areas are significant.

External Factors

The influence of factors external to the firm on IRM programs was explored in several sections of the interview questionnaire. Questions were developed based on themes emerging in the literature review on corporate voluntary environmental strategies, in addition to those discovered during the first phase of the research program. Themes relating to external influences on inter-firm IRM are organized into several sections including bureaucratic and institutional capacity, the natural resource policy regime, anticipated future regulation, the provincial economic structure, as well as the influence of industry associations and stakeholders.

Institutional and Bureaucratic Capacity

The relationship between the state and corporate actors is considered to be an important influence on voluntary environmental strategies. The structure of state bureaucracies and their actions have the potential to facilitate or constrain industry innovation and corporate responsiveness to demands for environmental protection. The following section outlines three major themes emerging from interview data suggesting that the provincial government of Alberta and its associated bureaucratic agencies have limited capacity to deal with the complexity of inter-industry IRM programs and are not providing adequate structural support to these programs. Table 1 illustrates some of the sub-themes that fall within the theme of institutional and bureaucratic capacity, as well as the distribution of responses across categories of respondents.

Table 1: Perceived provincial government bureaucratic and institutional capacity

	Category of Respondent								
	Al-Pac FMA					Weyerhaeuser FMA			
Theme:	Govt.	O&G	Forestry	First Nations		Govt.	O&G	Forestry	First Nations
Limited confidence in govt ability to manage cumulative effects	▪		▪	▪		▪	▪	▪	▪
Govt cutbacks & re-organization negatively affect inter-firm IRM							▪	▪	▪
Declining govt leadership in environmental protection	▪	▪	▪	▪		▪	▪	▪	▪
Govt agency effectively handles innovative applications	▪	▪	▪	▪		▪			

▪ At least one individual from this category of respondent expressed theme

Government land management and regulatory capacity

As the provincial government is charged with managing public land and resources in Alberta, one interview question sought to measure how respondents perceived the provincial government's capacity to handle complex land management issues. Specifically, respondents were asked how much confidence they had in the provincial government to deal with cumulative environmental effects. Most respondents expressed that they have little confidence in the provincial government. In the Al-Pac case study, all but two oil and gas respondents indicated that they have little confidence in the provincial government. In the Weyerhaeuser FMA, confidence in the provincial government was even lower, with all respondents indicating they have little confidence that the provincial government can deal effectively with cumulative effects. According to one respondent:

> *I think the technology and the processes and the science is there that will allow us to address a lot of cumulative effects. I think there is potential to significantly reduce that. The political willingness is a completely different thing...Alberta is, well, I'd be generous if I said they were cautious. They're kind of between cautious and very reluctant to do that.*

Land management agencies' capacity to handle innovative applications for resource development[6] was explored in the interviews to understand better whether innovative voluntary environmental strategies were being delayed or rejected during regulatory approval processes. Government respondents in both cases were asked how they perceived their agency's ability to handle complex, innovative applications for resource development. For both case study areas, all but one government respondent replied that their agency is able to deal effectively with these applications, although with some limited flexibility, as plans must still conform to basic regulatory requirements. None of the respondents mentioned that innovative proposals had been rejected by their agency.

One sceptical government respondent working in the Weyerhaeuser FMA area believed that their[7] agency has a difficult time approving innovative applications for development.

> *A lot of the time [approving innovative plans is] harder because you don't have a lot of time [and] the legislation's not geared for the new plans...so a lot of times the legislation is falling a little behind [but they are] things we're working on correcting...Like the ground rules I've been working with...are from 1994, so right now we're trying to work on updating the ground rules and get things a little more up to date with... the innovative practices that [companies] are working on.*

Over the course of the interview, industry and First Nations respondents from the Al-Pac FMA cited a lack of flexibility from the provincial government during the review of innovative land management plans such as inter-firm IRM. Most Al-Pac representatives and the First Nations representative in this FMA area felt that government is slow to approve innovative resource development plans.

> *For those companies that are proactive, the government moves too slowly in instituting environmental policy and procedure. The bureaucracy doesn't seem to really care how and when those policies, procedures and standards come into play. (Al-Pac First Nations respondent)*

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[6] Innovative land management plans were defined as plans for resource development that are outside the status quo and/or exceed regulatory requirements.

[7] 'They' or 'their' is used instead of identifying the gender of the respondent.

Declining government leadership in environmental protection

One interview question asked respondents to identify who they perceived to be leading environmental improvements in land management in Alberta. The purpose of this question was to establish a list of key actors who interviewees perceived to be promoting environmental protection in Alberta, particularly as the first phase of the research suggested that the provincial government was not as environmentally proactive as certain natural resource companies in the province. Respondents felt that certain progressive resource companies, rather than government, are leading the way in environmental improvements in land management. All respondents in the Al-Pac FMA felt that certain progressive industries are currently leading environmental responsibility in Alberta. These same respondents qualified their response by explaining that improvements were largely motivated by environmental certification programs and the international market for environmentally friendly products. Similarly, in the Weyerhaeuser FMA, with the exception of one government representative, respondents perceived that specific resource extractive companies are leading environmentally responsible land management practices, while the general public is responsible for pressuring government and industry to improve their practices. In both case studies, the forestry sector was most frequently referred to as an example of an industrial sector committed to corporate environmental responsibility. Respondents felt that although the provincial government is making some effort to encourage environmental practices, it is lagging behind other actors in leading environmental responsibility.

> *I don't think [the provincial government] is leading [environmental improvements in land management]. They make a requirement and [put] out guidelines and standard operating procedures...but it's not really what I would call leading... I think from the government's side... it's probably a response to public outcry, some scientific data that says we need to be more aware of what's going on. (Al-Pac government respondent)*

> *There's pressure from the forest sector side coming from the marketplace around sustainability. So FSC, the Forestry Stewardship Council certification, CSA certification, ISO, those kinds of [programs]... Some of the same thing is*

driving the energy sector in terms of the social and environmental responsibility funds... [and] indices on the various markets. New York has the Dow Jones Sustainability Index [that] ranks a number of companies in terms of their sustainability on the environment side, and it requires stewardship on environmental issues. (Al-Pac industry respondent)

There has been a push by some governments [for environmental improvements], so I think they have a key component in it. I don't necessarily think they're striving forward. I don't feel like they are the immediate leaders. But I definitely think they're pushing towards it. But that's also due to their constituents and their public that is demanding that. (Weyerhaeuser industry respondent)

Over the course of the interview, many respondents also cited a lack of leadership from the provincial government in inter-firm IRM programs. In the Al-Pac FMA, for example, the First Nations respondent along with three representatives from Al-Pac and two representatives from oil and gas companies perceived that the provincial government is not leading inter-firm IRM programs. All Weyerhaeuser representatives and two thirds of oil and gas representatives also perceived poor government leadership in inter-firm IRM initiatives. Furthermore, a government respondent in the Al-Pac FMA perceived that much of the resource planning authority is currently being placed in the hands of resource industries.

[The government] throws a lot more planning authority to the FMA guy because they have the bigger picture in mind in the forest. But that is...just completely abdicating any government responsibility for land management. We are still the land managers, that's still our mandate. (Al-Pac government respondent)

Unfortunately, the perspective would be that government tends to be a bit reactive. (Al-Pac industry respondent)

I think the only way it would make a difference is if [the provincial government] potentially put someone in charge of integrated resource plans within an area. So... they would be working at coordinating those companies. (Weyerhaeuser industry respondent)

Government interviewees from both case studies were asked if their agency was actively encouraging inter-firm IRM programs. Both government respondents in the Al-Pac FMA and one government respondent from the Weyerhaeuser FMA indicated that their local government office is approving environmental initiatives, but not actively encouraging their development. Another government respondent from the Weyerhaeuser

FMA, however, felt that their office is encouraging environmentally responsible behaviour.

ENGO respondents were asked how they would evaluate the provincial government's efforts toward encouraging environmentally responsible behaviour from the oil and gas and forestry sectors. All ENGO respondents believed that government is taking limited action.

> *I think the industry itself has been trying. I'm not really sure where government's at. They just...look at [industry] and say...you're self-governing, so go for it... I think that the industry itself is trying, basically cause they look really bad and people are getting fed up. Government is secondarily [involved]. They endorse...industry's own certification of how well they're doing ... So the industry is setting a higher standard.*

Government re-structuring and adequacy of government department staffing

Cutbacks in staff and frequent re-organization of government land management agencies were cited as two factors complicating the development and implementation of innovative resource development strategies. Industry respondents in the Al-Pac FMA felt more confident in their ability to develop innovative plans despite complications arising from government restructuring and limited resources.

In the Al-Pac FMA, one Al-Pac representative and one government representative believed that restructuring and cutbacks in staff has led to a decrease in organizational knowledge where employees with valuable skills and know-how have left government agencies. Another government employee in this same case study area explained that their agency has been frequently redefining its guiding mandate and is now lacking a clear mandate, which they perceived as an embarrassment to their agency. Despite concern about decreasing bureaucratic agency capacity, industry representatives indicated that government re-organization and staffing is not having a discernible effect on their ability to integrate their operations with the other sector. Al-Pac representatives believed that the quality of communication between their company and the land management agency was

such that timber harvesting plans accommodating inter-firm IRM were fairly straightforward to approve.

> *I went and asked...our regional [provincial government] director, I said...if I go to all the trouble of making a plan, integrating as best as we can, what's the chance of getting an approval? Oh, well we'll approve it, [he said]. And I said, okay, we'll continue to make the plan. Sure enough, to his word, once we filed [our harvest] plans [to the government agency], we'd done our homework. We talked to the rangers. We talked to the people. We got input before we finalized anything. (Al-Pac industry respondent)*

> *I don't think [inter-firm integration] is real difficult if you know which strengths to pull and people to talk to. But the big problem with any outfit and that [goes through] a constant reorganization is you never really know who's in charge anymore and they're not in charge for long...I went into this job in late '99, there have been constant turnovers since then. (Al-Pac government respondent)*

In the Weyerhaeuser FMA, these same concerns emerged, but unlike Al-Pac FMA interviewees, respondents believed that the effects of government restructuring were constraining opportunities for inter-firm IRM. Three Weyerhaeuser representatives believed that, owing to government restructuring, government land management agencies are not in a position to facilitate adequately industry-initiated IRM programs. With the exception of one government employee, all Weyerhaeuser, oil and gas and First Nations respondents also appeared to be concerned about the adequacy of government staffing. These individuals felt that their corresponding government agencies are understaffed and unable to deal with the volume and complexity of applications for development. In the words of one respondent:

> *I think for this area here, oil and gas and everything happens in the winter months so you've got everything happening in four or five months. You've got forestry operations and oil and gas operations, which are very heavy. So I think the [local provincial government] staff is inadequate to address all that. Those guys are probably run off their feet.*

Natural Resource and Environmental Policy Framework

Although the provincial government's limited ability to lead IRM programs and handle complex land management issues was a topic raised in many interviews, respondents also referred to the constraints imposed by the natural resource policy regime on inter-firm

IRM. The literature on corporate greening suggests that policy regimes influence voluntary environmental strategies by encouraging their development and determining the degree of flexibility corporations have when designing and implementing these strategies. Most respondents from both case studies perceived significant problems with Alberta's natural resource policy framework and considered these problems to be complicating rather than encouraging inter-firm IRM. Specifically, the majority of respondents perceived significant problems with the allocation system for oil and gas leases, detected ambiguity in policy and planning guidelines and incompatibility between the planning horizons for the forestry and oil and gas sectors. Table 2 illustrates these three themes and shows how responses are distributed across categories of respondents.

Table 2: Perceived constraints imposed by natural resource and environmental policy regime

	Category of Respondent							
	Al-Pac FMA				Weyerhaeuser FMA			
Theme:	Govt.	O&G	Forestry	First Nations	Govt.	O&G	Forestry	First Nations
Resource allocation system complicates inter-firm IRM	•	•				•		
O&G planning horizon too short to integrate with forestry					•	•	•	
Lack of clear policy and guidelines relating to inter-firm IRM	•	•	•	•	•	•	•	•

• At least one individual from this category of respondent expressed theme

Resource Allocation System

The resource allocation system, particularly the allocation of oil and gas dispositions, was frequently cited as a key area for policy improvement. Two government representatives and one oil and gas representative from the Al-Pac FMA felt that the decision to post land sales in certain regions of the province does not promote the integration of different land uses and does not take into account the compatibility of proposed land uses with existing

uses. These three respondents felt that IRM should be addressed prior to the resource allocation phase, rather than after allocations have been made. According to one respondent,

> *At the end of the day, you still have... a layer cake of resource rights handed out, and oil and gas tenure overlapping with the forest tenure. And so that drives the activity. So you change that and your ILM will go some distance but it's not completely, fully addressing cumulative effects issues... It would manifest itself in changes to rights disposition. You would actually either claw back or constrain rights dispositions in certain areas to accommodate environmental values.*

In the Weyerhaeuser FMA, one oil and gas representative explained that in certain regions of the province, the government is reluctant to clearly state its goals for environmental protection and is choosing instead to allocate oil and gas leases in areas potentially slated for protection, thereby limiting future non-development options. As this respondent explained,

> *So [in one area of the province]...it appears that the government promised special [protected] areas...I don't know where that talk went to but then they started selling [oil and gas] leases out there...So they're selling leases under there now, which from my point of view implies that they intend to have development out there. And maybe they're using the oil and gas companies and the forest companies to open the door rather than the government coming out with a blanket statement saying well...this area will never be considered a park and we're going to develop it.*

Oil and gas planning horizon

In the Weyerhaeuser FMA, respondents characterized the planning and development horizon for conventional oil and gas activities as being too narrow to allow for integration with forestry operations. This theme did not emerge in the Al-Pac FMA; however in this FMA, integration programs involve oil sands operations, which have a planning and development horizon comparable to forestry operations. In the Weyerhaeuser FMA, half of the Weyerhaeuser respondents, one government respondent and all of the oil and gas respondents perceived the difference in planning horizons and the confidentiality of planning information for oil and gas developments as a constraint on landscape level inter-firm IRM. According to two industry respondents:

It takes a little bit of time [to integrate with the forestry sector]. We can't plan anything usually because we get that right for five years and then we have to just get in there as fast as we can. And usually that window doesn't allow us to do any kind of planning about what we're going to do with all the intervening land in between and what the best development for that is.

Definitely it would be helpful to know in advance where [oil and gas companies] potentially might be going... I'm told that the oil and gas industry has a pretty good idea of where the potential development areas are, but that's classified information. It's very confidential and is a result of the competitive environment they find themselves having to operate in...It would be good if policy would allow for that information to become available...we could get an idea of potentially where [oil and gas companies] might be going [and] when they might be going.

Ambiguous planning guidelines and resource policy

When discussing how the policy regime affects inter-firm IRM programs, respondents cited a lack of clear guidelines from the provincial government specifying how firms should integrate their developments. In the Al-Pac FMA, the First Nations respondent along with most respondents from government, Al-Pac and oil and gas companies perceived significant ambiguity in Alberta's resource management policies, resulting in each operator having a somewhat unique interpretation of these policies. Most industry respondents qualified their criticisms by explaining that industry wanted clearer policy, rather than more binding policy. These respondents were also unsatisfied with the lack of government direction in defining acceptable inter-firm IRM approaches, and preferred some guidance from government where designing their own approach to inter-firm integration.

So interpretation of [guidelines] later on by the future and following proponents ...is very incumbent upon what you want [guidelines] to say. Because, for the most part, they aren't written like a law. They're aren't written like a regulation: thou shalt. These are guidelines... All the proactive developers versus all the guys that want the world to stand still, you end up in a situation where everybody argues about the points and the intent of the original document, because it was never qualified in law... And it becomes very confusing for proponents that want to develop later on. (Al-Pac industry respondent)

As the true land manager, the government, it would be nice if we could come up with some brilliant initiative that would allow all these companies to peacefully coexist. I don't know if we've dropped the ball or we just are driven by the politics or we're lacking visionaries or I don't know what has really happened. We could say okay, that's what we're going to do for the next hundred years.

Maybe I'll come up with a good idea one of these days. (Al-Pac government respondent)

In the Weyerhaeuser FMA, three quarters of Weyerhaeuser representatives, two thirds of oil and gas representatives, and one third of government representatives perceived inherent ambiguity in land use policy and a lack of political will to provide clear policy, guidelines and ground rules to developers, which they believed were key barriers to inter-firm IRM. The policy regime was faulted for having different operating standards for forestry and oil and gas developments, while similar to the Al-Pac FMA, the provincial government was blamed for failing to articulate clear guidelines on how industries from different sectors should approach inter-firm IRM. In addition, government was faulted for perpetuating a void in natural resource policy where resource developers are unsure if their activities will be allowed in contested areas with competing land uses. As one oil and gas respondent explained,

> *So basically, we want to go in there and develop and bring our gas out of our leases using whatever policy the government states. The only problem is that the government doesn't want to state a policy... They just refuse to actually come out and say something... If the government said there's no access to the area, we'd walk away from it. And if nobody else was being sold rights... we can deal with that. But it's the void... in government policy... And we're also[asking]what... kind of documentation is required to satisfactorily prove that you would go through an integration process with a well or a license or road, that sort of thing.*

Threat of Future Regulation

Research on voluntary environmental strategies suggests that the threat of stricter regulation is a powerful incentive for the adoption of voluntary environmental strategies. As such, respondents were asked to predict how Alberta's land management regulation would change in the future, in order to determine if respondents anticipated stricter or more lenient land management regulation. In the Al-Pac FMA, most respondents predicted future regulatory reform promoting greater industry self-regulation supplemented by government monitoring of land management practices. An Al-Pac

representative and a government representative, on the other hand, predicted very little change in future regulation. For those companies that were engaging in inter-firm IRM programs, pressure from the international market, where consumers are demanding 'green' products, appeared to be a significant factor influencing their decision to integrate, rather than anticipated future regulation.

In the Weyerhaeuser FMA, with the exception of an oil and gas representative, all respondents predicted some change in future regulation, with greater industry self-regulation and more rigorous operating standards incorporated into codes of practice. In the words of one government respondent:

> *I would say there would be higher standards [put on industry] but I don't know if they will be driven by regulation. Regulation may catch up to what is driven by the public and the consumers and international image of the company. I think you'll see a fairly reduced government presence long term. It's on a downward trend on a per capita basis.*

Economic Dependence on Natural Resource Revenues

The influence of regional or national economic frameworks on voluntary environmental strategies does not appear to have been explored in the literature. Nevertheless, Alberta's economic framework, particularly the government's reliance on revenues from the oil and gas sector, was frequently cited as a factor constraining IRM. In the Al-Pac FMA, over half of the Al-Pac representatives, along with one First Nations representative and one oil and gas representative characterized the provincial government's economic dependence on the oil and gas sector as a barrier to inter-firm integration. These respondents felt that if integration required a scaling back of oil and gas development or the protection of certain areas, the provincial government would be reluctant to place limits on this development. As one industry respondent explained,

> *We're under no misconceptions here that oil rules. So we know it. And given that, we know how [the forest sector] should perhaps react. And we know you can only push so far and if you get in the way of the oil industry the hammer's going to come down, we know that. We all know that... [Premier] Ralph [Klein]*

and the government are going to mine that oil whether we like it or not.

In the Weyerhaeuser FMA, many respondents similarly perceived a significant degree of economic dependence on the oil and gas sector and the government's reluctance to place limits on this sector. Two thirds of the government representatives, three quarters of the Weyerhaeuser representatives, and one third of oil and gas representatives perceived that the government is overly reliant on revenues from the oil and gas industry, constraining certain options for integration, such as setting limits or slowing oil and gas development. According to three industry respondents:

> *[Government] could put a push on people to start to work together but it's going to take a lot. There's a lot of pressure...To be negative I don't think the government wants to impose anything too harshly on the oil industry due to that's their money maker and they're quite tied with them.*

> *It's no secret that Alberta's an industry friendly province...I think there is a lot more diversity in the economy here than there ever has been...What I don't think is very diverse is government's revenue structure, ironically enough...I don't think government revenues are terribly diverse.*

> *Alberta's a very wealthy province. And the economic engine is driven by oil and gas and to a lesser extent, forestry. Much lesser extent. I think [government is] just very reluctant to do anything that's going to impede that progress.*

The perception that the provincial government is highly dependent on revenues from resource development at the expense of environmental protection was also evident during interviews with First Nations participants. First Nations respondents from both case study areas believed that the provincial government is unconcerned about environmental protection. These respondents felt that the government is concerned more greatly about ensuring a strong revenue base from resource development rather than facilitating inter-firm IRM.

> *And I'm suspicious that the dollar matters much more to government and oil and gas [companies] than what we need to do in managing the environment.*

Field Cohesion

External influences from non-government actors were also explored in the interviews. In particular, the literature on voluntary environmental strategies suggests that field cohesion, or the ties between industries within the same sector, plays a role in constraining corporate greening, particularly if the majority of industry members are reluctant to change their practices. In the interview questionnaire, the influence of field cohesion was explored by asking respondents whether their corresponding industry association, the Alberta Forest Products Association (AFPA) or the Canadian Association of Petroleum Producers (CAPP), was influencing their decision to engage in inter-firm IRM. Respondents from Weyerhaeuser and oil and gas companies from both case study areas felt that their industry association is having very little impact on their decision and was neither facilitating nor constraining integration.

Responses from Al-Pac representatives differed slightly, particularly as this company is no longer a member of the AFPA. Respondents were asked if being outside their industry association was influencing integration. Most Al-Pac respondents felt that being a member of the AFPA would have complicated inter-firm integration, particularly if AFPA members were sceptical of these new initiatives.

Perceived Influence of Stakeholders

The influence of stakeholders on inter-firm IRM was also explored in the interviews, as the research on stakeholder theory suggests that stakeholders are extremely important in pressuring firms to improve their industrial practices. Several interview questions asked respondents whether stakeholders were aware of either their current integration activities or their interest in engaging in inter-firm integration. Respondents were also asked to comment on the groups who were critical of their practices or were demanding more inter-firm integration. In the Al-Pac FMA, all Al-Pac respondents and one oil and gas

representative felt that integration was not in response to stakeholder demands, although when stakeholders were aware of these initiatives, their response was thought to be positive. When asked to comment on stakeholders critical of their operations, most respondents listed stakeholders who are critical of their day-to-day operations and did not list any groups or individuals who are critical of a lack of inter-firm integration. All respondents indicated that their company has a formal process for dealing with stakeholder complaints and for consulting with stakeholders prior to development. As two industry respondents explained,

> *I haven't had any complaints [regarding integration between forestry and the oil and gas sector] from anybody, actually. I've had a whole bunch of people telling me that's great you're doing that.*
>
> *We've been able to address most of the stakeholders' needs.*

In the Weyerhaeuser FMA, most respondents felt that the integration of activities is not in response to stakeholder demands. Two oil and gas respondents and three Weyerhaeuser respondents felt that most stakeholders in the Slave Lake FMA are not critical of the lack of inter-industry integration, rather certain key groups are occasionally upset with the impacts from their normal operations. Respondents felt that their company has an adequate system to identify and deal with the concerns of critical groups. In the words of one industry respondent:

> *We have a process in the management system to deal with complaints...So we're trying to work with [stakeholders] and educate them and try to explain to them what we're doing and all that. Usually at the end, they calm down...Then at least they come away with an understanding of why we're doing it. And so far, we've been fairly lucky.*

In other FMAs where Weyerhaeuser was planning IRM programs, however, the demands of stakeholders, particularly environmental groups, was perceived as a key factor promoting IRM programs. One senior manager explained that a landscape level integration program is being undertaken in another FMA, owing in part to significant pressure from stakeholders.

INTERNAL FACTORS

A review of the literature suggests that factors internal to the firm are important determinants of voluntary corporate greening. Accordingly, interviews with key actors included several questions aimed at learning more about the factors within the corporation that respondents perceived to be influencing inter-firm IRM. Specifically, respondents were asked if environmental policy supporters and sceptics existed within the firm and to expand on their understanding of how the specific characteristics of their companies affect either their inter-firm IRM initiatives or their desire to engage in these initiatives.

Policy Skeptics and Supporters

The dynamics between supporters and sceptics of corporate greening play a significant role in determining if firms adopt voluntary environmental strategies. If supporters are able to convince sceptics of the benefits of adopting voluntary environmental strategies, particularly if sceptics are key corporate leaders, the firm is more likely to adopt these strategies. As such, during the interview, industry respondents were asked to list policy supporters—including themselves—who they perceived were promoting inter-firm integration and to comment on any policy sceptics within their organization. The purpose of this question was two-fold: to obtain a description of the dynamics between policy supporters and sceptics in the organization and to develop a list of key individuals within each company thought to have a positive influence on IRM programs. Table 3 illustrates the key policy supporters in both case studies and how responses were distributed across categories of respondents.

Table 3: Key policy supporters

	Category of Respondent				
	Al-Pac FMA			Weyerhaeuser FMA	
	O&G	Forestry		O&G	Forestry
Senior managers	▪	▪			▪
Environmental manager	▪	▪		▪	
Operations planner	▪	▪			
No one promoting				▪	▪

▪ At least one individual from this category of respondent expressed theme

In both FMAs, senior managers, environmental managers and operational planners were frequently identified as key policy supporters. In the Al-Pac FMA, all Al-Pac respondents listed a senior manager, as well as a forest operations planner as the two most important policy supporters. Personnel responsible for operations and planning were also listed, although not as frequently. Oil and gas respondents in the Al-Pac FMA gave credit to certain operations planners, environmental managers and senior managers within their firm. One oil and gas representative also listed a senior manager at Al-Pac as a key policy supporter. Likewise, in the Weyerhaeuser FMA, three Weyerhaeuser representatives listed a senior manager as a key policy supporter, and an environmental manager from an oil and gas company identified themselves as a key policy supporter. One Weyerhaeuser representative and two oil and gas representatives from this FMA, however, could not identify any policy supporters within their organization.

Most respondents were able to detect some degree of scepticism within their organization but felt that scepticism was fairly weak. When asked to comment on policy sceptics within their organizations, respondents in the Al-Pac FMA believed that policy sceptics are most concerned about the amount of planning effort required to implement integration programs. One oil and gas representative from the Al-Pac case study did not feel there were any sceptics within their organization. Most Weyerhaeuser representatives and one oil and gas representative identified some degree of scepticism within their

organizations. These respondents felt that policy sceptics are most concerned about the degree of success that could be achieved by inter-firm integration. One Weyerhaeuser representative and two oil and gas representatives from this case study indicated that there are no policy sceptics within their organizations.

Corporate Leadership

As illustrated above, corporate leaders are extremely important policy supporters in firms from both case study areas. Research on voluntary corporate greening suggests that leaders who support voluntary environmental strategies are able to influence internal decision-making and resource allocation thereby facilitating the implementation of these strategies. Industry respondents in the Al-Pac FMA were more likely than those in the Weyerhaeuser FMA to expand upon the positive influence of company leaders as a key internal factor facilitating inter-firm IRM. Specifically, two Al-Pac representatives perceived the leadership of a corporation, in particular the leader's commitment to integration, as an important factor facilitating IRM.

> *I think it's enlightened leadership. It's like our company and other enlightened... companies... are saying we're going to do things differently.*

In the Weyerhaeuser FMA, however, this theme did not emerge.

In both case study areas, senior managers from forestry and oil and gas companies were asked to comment on the role senior managers should play in inter-firm IRM. All respondents from both case studies believed that senior managers should support IRM initiatives and facilitate their development.

> *[Senior managers] really have to set a tone and ensure that policies are adopted and make sure that structures are in place to ensure that those policies are adhered to.*

The interview questionnaire also attempted to measure if senior managers felt that IRM fit with their corporate environmental policy. All senior managers from both case

study areas indicated that inter-firm IRM fit well within their company's environmental policy.

> *We set out to design a project that would minimize impacts on the environment...ILM is a natural fit with that.*

Nevertheless, a Weyerhaeuser senior manager indicated that the priority for inter-firm IRM is higher in other FMA areas operated by the company that are experiencing greater public and regulatory scrutiny, while the Slave Lake FMA is not currently the top priority area for implementing IRM programs.

Characteristics of the Corporation Needing Improvement

Characteristics of organizations, such as internal capacity, strategic planning and the influence of personnel on corporate behaviour are, according to extant research, important variables affecting the adoption of voluntary environmental strategies. Rather than attempting to measure each of these variables, respondents were asked instead how their companies could be improved to allow for greater integration. Table 4 shows how various responses were distributed across categories of industry respondents.

Table 4: Characteristics of corporation needing improvement

	Category of Respondent				
	Al-Pac FMA			**Weyerhaeuser FMA**	
	O&G	Forestry		O&G	Forestry
More human resources and planning time		▪			▪
Greater knowledge of other sector's operational requirements	▪				▪
Incentives to spur innovation		▪			▪
More effective intra-firm communication	▪	▪			

▪ At least one individual from this category of respondent expressed theme

Shortages in human resources and time limitations were cited as key areas for improvement. Inter-firm IRM was perceived as an initiative requiring time and human resources beyond what was already allocated to existing operations. Two Al-Pac

respondents and one Weyerhaeuser respondent believed that their company needs more human resources and planning time to improve integration with oil and gas developments.

Greater knowledge of the other sector's operational requirements and earlier communication between forestry and oil and gas companies was cited by three oil and gas representatives in the Al-Pac FMA. A senior manager from Weyerhaeuser along with two Weyerhaeuser representatives also felt that the company would benefit from greater knowledge of the operational requirements of firms in the oil and gas sector.

Two senior managers, one from Al-Pac and one from Weyerhaeuser, believed that their firms would benefit from more incentives to spur innovation in IRM planning.

> *It's getting our own company to think at those larger scales and to be proactive. To devote the resources and the time to see what we can do to help mitigate the issues at the landscape scale.*

In the Al-Pac FMA, intra-firm communication and knowledge of the other resource sector were listed as areas for improvement. More effective intra-firm communication, where employees responsible for separate resource development tasks keep each other informed of issues relating to inter-firm IRM, was cited by one Al-Pac respondent, one oil and gas respondent and one senior manager from an oil and gas company.

One oil and gas respondent from the Weyerhaeuser FMA did not believe their organization required any improvements to allow for greater integration with the forestry sector.

Government respondents from both case study areas were asked to comment on the factors within forestry and oil and gas companies they perceived were facilitating or constraining integration. Both government respondents from the Al-Pac FMA and one from the Weyerhaeuser FMA perceived corporate culture promoting innovative resource planning to be an important internal characteristic. According to one government respondent:

The company mentality of culture, in terms of how open [the company] is for this type of thing [is important]... You need to have a company culture that's willing to accept instability to a degree. And I know companies hate instability, but it's just part of the way it is around here.

Perceived Benefits and Risks of Inter-Firm Integration

The literature on corporate greening suggests that greening can stem from strategic planning goals and often depends on whether a corporation perceives greening to be a competitive advantage. These particular themes, among others, emerged when respondents were asked to comment on the benefits and risks of inter-firm integration. Table 5 illustrates the range of benefits and risks cited by respondents and shows how responses were distributed across categories of respondents.

Table 5: Benefits and risks of inter-firm IRM

	Category of Respondent				
	Al-Pac FMA			Weyerhaeuser FMA	
Benefits:	O&G	Forestry		O&G	Forestry
Reduction of environmental impacts from resource development	•	•		•	•
Social license	•	•		•	•
Financial benefits	•			•	•
Attitudinal benefits		•			
Risks & Costs:					
Initial start-up costs	•			•	•
Change in operations				•	•
Scrutiny from industry and government		•			

• At least one individual from this category of respondent expressed theme

Benefits

The reduction of environmental impacts from resource development was the most commonly cited benefit of inter-firm IRM. In the Al-Pac FMA, two oil and gas senior managers and three Al-Pac representatives believed that inter-firm IRM would significantly reduce fragmentation of forestlands and the volume of timber removed from

the land base. Two Weyerhaeuser representatives and a senior manager from an oil and gas company in the Weyerhaeuser FMA also cited these environmental benefits.

Another popular benefit cited was the social license to continue to extract natural resources from public land. Respondents believed that IRM initiatives would improve their public image and provide a stronger guarantee of continued access to the resource. As such, IRM was considered a strategic planning advantage. Two oil and gas senior managers from the Al-Pac FMA and two Al-Pac representatives cited this benefit, as well as two Weyerhaeuser respondents and a senior manager from an oil and gas company operating in the Weyerhaeuser FMA.

Financial benefits were mentioned by many respondents, particularly oil and gas representatives. One oil and gas respondent from the Al-Pac FMA, two Weyerhaeuser representatives and a senior manager from an oil and gas company operating in the Weyerhaeuser FMA believed that IRM initiatives would reduce operational costs, thereby contributing to competitive advantage.

Attitudinal benefits were cited by a senior manager from Al-Pac. This respondent explained that inter-firm IRM generated a sense of pride and accomplishment within the organization.

Risks and Costs

Respondents listed several risks of inter-firm integration, although they qualified their responses with an explanation that these risks are minimal compared to the potential benefits from inter-firm IRM programs. In the Al-Pac FMA, one oil and gas respondent and one oil and gas senior manager indicated that the start up costs of engaging in a new IRM project is a risk for the company. In the Weyerhaeuser FMA, two oil and gas respondents, one senior manager from oil and gas company and one Weyerhaeuser respondent also cited this risk. In the words of one industry respondent:

The costs, definitely there's an incremental cost associated...with spending time on the early dialogue-- it's not a lot but it is something. And so, I think [our company is] able to absorb that. It's not huge but it's still there.

In the Weyerhaeuser FMA, two oil and gas respondents, one senior manager from an oil and gas company and one Weyerhaeuser respondent perceived operational risks, where the company would have to change how they conduct their operations without a guarantee of acquiring equivalent benefits. According to one respondent:

There [would] definitely be more costs due to planning, which requires a lot more of our people's time working with [the oil and gas sector]. So that's a cost right there. And as well as the cost [of] coordinating your road systems and all the behind-the- scenes planning before you actually get onto the ground would be immense...And the risk...that we put a road in to such a standard to such an area that we believe we're going to be using in the future.

One Al-Pac respondent believed that scrutiny of industry peers and government during the first phase of a new project was a risk of inter-firm IRM, where these groups may criticize the company.

The spouting whale gets the harpoon.

INTER-ORGANIZATIONAL COOPERATION

Factors facilitating or constraining inter-organizational cooperation were also explored in the interviews. Research on inter-organizational cooperation suggests that many factors are responsible for successful relationships, including the acquisition of mutual benefits, level of trust and the compatibility of organizational goals. Respondents were asked to comment on some desirable characteristics of companies working in the other sector that facilitate inter-firm integration. Although the literature indicates that inter-organizational cooperation has various determinants at different stages of the relationship, respondents suggested that cooperation was most complicated during the start-up phase of the project but was relatively straightforward thereafter. Table 6 displays some of the desirable characteristics listed, and how they were distributed across categories of respondents.

Table 6: Factors facilitating inter-organizational cooperation

	Category of Respondent						
	Al-Pac FMA				Weyerhaeuser FMA		
Theme:	Govt.	O&G	Forestry		Govt.	O&G	Forestry
Partner's environmental mandate	▪	▪	▪		▪		
Active persuasion	▪	▪	▪				
Partner's willingness to cooperate						▪	▪
Compatibility of operations					▪	▪	▪
Appointment of a facilitator						▪	▪

▪ At least one individual from this category of respondent expressed theme

In the Al-Pac FMA, a company's environmental mandate or goals for land management were particularly important to industry partners. Specifically, three Al-Pac respondents, two government representatives and two oil and gas respondents believed that a partnering company's land or environmental mandate is important for successful integration. One government representative from the Weyerhaeuser FMA also believed in the importance of a common environmental mandate. As one industry respondent explained,

> *Environmentally sensitive or friendly companies. Companies that want to exceed the status quo. [Our company] would look for a company in that category to start with.*

Respondents from the Al-Pac FMA cited active persuasion as a factor facilitating cooperation. Two Al-Pac representatives, one government representative and one oil and gas representative felt that Al-Pac's efforts to provide incentives and educate potential partners on the benefits of integration are crucial to the development of cooperative agreements.

> *The more people you get involved and the more often you can make it work, the greater the savings are. But it takes me... sitting with these guys, telling them that this stuff is going on here, why it's important, and the same thing catches them all: I can save you a million dollars. (Al-Pac industry respondent)*
>
> *No, from what I've seen, [the] oil and gas guys are pretty cooperative when they*

want to [be]... ALPAC has sold it well to them. (Al-Pac government respondent)

As I said, it's not rocket science. It probably takes some education. It takes some education in just how easy it can be to take the first steps. (Al-Pac industry senior manager)

One Al-Pac respondent also mentioned that their company keeps track of proposed oil and gas developments in the region so as to approach potential partners well in advance of development and inform them of the benefits of integration.

In the Weyerhaeuser FMA different themes around inter-organizational cooperation emerged. Forestry and oil and gas participants felt that the willingness to cooperate, the compatibility of industrial operations and the presence of a facilitator were essential to successful cooperative planning relationships. For example, with the exception of two individuals, all industry respondents in the Weyerhaeuser FMA felt that a company's desire to cooperate with other companies is an important factor in inter-firm IRM. Respondents also explained that the personalities of staff within the other company, as well as their knowledge of other sectors' operations, influence that company's willingness to cooperate. In the words of two industry respondents:

It's just nice to have a land man [in an oil and gas company] that understands forestry operations to understand our needs to and to be able to...get their wood out after they cut it and...try to coordinate efforts that way.

It's a function of personalities... You have the right players, the right dynamics going between people and the collaborative process and you can make a lot happen.

The specific planning requirements for oil and gas and forestry sectors were also perceived to influence cooperation negatively. One Weyerhaeuser respondent, one government respondent and one oil and gas respondent indicated that the incompatibility of conventional oil and gas and forestry operations, combined with the considerable difference in planning horizons seriously complicates opportunities for cooperative planning between these two sectors. As one industry respondent explained,

Oil sands development...that's more like a forestry operation. They have this big plant that they need to feed and they need to feed it at a certain rate to make

sure that their total cost production is as low as possible...you can think of a boreal forest operation as a slow growing...mine...But it's different, though, if you've got somebody who's looking for natural gas...The one thing is they don't always know [the location and quantity of] reserves...gas and oil wells are much more unpredictable.

The appointment of a facilitator was another important theme that emerged from respondents in the Weyerhaeuser FMA. Two Weyerhaeuser respondents and one oil and gas respondent believed that a third party, most likely government, should be involved as a leader or neutral arbitrator when developing and designing IRM programs. According to one industry respondent:

I think it would be nice if [the provincial government] would bring together both organizations whenever we have to submit our annual operating plans to the government. Oil and gas should have to submit a similar type of plan. And you get all three sides together at the table. [All groups] saying, this is where we want to go and...this is what we want to do. And government has the final say on how you operate [and] where you're operating. And they should take both plans and work together to develop some type of integrated plan so as to coordinate both sides.

6. DISCUSSION

The most important findings from interviews reveal that multiple factors, both external and internal to the firm, are perceived by respondents to complicate the design and implementation of inter-firm IRM programs. Structural factors appear to pose the most significant constraints on inter-firm IRM, particularly the considerable extent of decentralization and deregulation in environmental governance in Alberta. Respondents perceived the need for stronger government leadership in environmental protection, increased government involvement in the planning phases of inter-firm IRM programs, and greater clarity in government policy. Interview responses also suggested that the province's regional economic structure, characterized by a reliance on revenues from natural resource extraction, is constraining the development of inter-firm IRM programs, as land management planners must adapt their development activities so they do not interfere with oil and gas development. Respondents also identified internal requisites. Adequate organizational capacity, resources and innovation to work around the external barriers to inter-firm IRM, particularly in a turbulent external environment were identified as key to enabling inter-firm IRM. Corporate leadership supporting and promoting inter-firm IRM was considered one of the most important internal influences on program success. Finally, inter-firm cooperation was perceived to be particularly tenuous at the beginning of the planning relationship. The compatibility of partners' operations and the awareness of mutual benefits derived from IRM programs were identified as the most important precursors to cooperation. The most significant precursor identified by participants was the willingness to engage in a cooperative relationship.

These external and internal factors are summarized below and findings are explained in two sections. The first section explains findings as they relate to the current structural conditions in the province of Alberta and internal organizational realities experienced by

the case study firms, and ties these observations to a broader discussion of voluntary environmental strategies and inter-organizational cooperation. This section is followed by an explanation of how these findings, when considered together, bring new insights to ecological modernization theory.

Overview of External Factors Influencing Voluntary Environmental Initiatives

Institutional and Bureaucratic Capacity

Respondents expressed the view that the limited capacity of the provincial government and its associated bureaucracies complicate inter-firm IRM. Respondents felt that the provincial government is not providing adequate structural support to IRM programs and lacks the ability to deal with complex land management issues such as cumulative effects. With the exception of oil and gas respondents from the Al-Pac FMA, all respondents had significant doubts that the provincial government is equipped sufficiently to deal with complex land management issues. This lack of confidence seems to point to a gap in land management leadership, particularly since the provincial government, as the steward of public land, is primarily responsible for allocating resources, regulating multiple uses on public land, and coordinating overlapping resource development activities. A means of addressing the cumulative effects of multiple activities appears to be absent from the government's current structure for land management, as each user is charged with managing the effects of his/her own activities, while no comprehensive policy tool exists to mitigate the combined impacts of multiple developments (Kennett, 2002). As such, interviewees' responses seem to be structured around demands for more government leadership in managing complex land management issues such as cumulative effects.

Surprisingly, and in contradiction to assumptions made in the corporate greening literature, the provincial government is not perceived as a key actor in environmental protection. Instead, the public, certain "progressive" resource industries, and the

international market for environmentally friendly products are perceived to be creating the momentum for environmental reform. Furthermore, respondents observed a significant shift in responsibility for environmental improvements to the resource extractive sector from the provincial government. These observations suggest that a new style of environmental governance is emerging in Alberta, where non-state actors, particularly corporations, rather than government, are becoming central agents in environmental protection. Similar changes in environmental governance are also being observed in other provinces, such as British Columbia, where the certification of forestry products is being driven by non-state actors and organizations who are setting standards defining how forests should be managed and forest products produced (Hoberg, 1999).

The data suggest that the capacity of land management agencies varies regionally, particularly between the two case study regions, as there were distinctly different perceptions of government agencies' capacity to handle the requirements of inter-firm IRM programs. In the Al-Pac FMA, respondents were relatively satisfied with their government agencies, while conversely in the Weyerhaeuser FMA where inter-firm IRM programs are non-existent, agencies were not perceived to be supporting inter-firm IRM programs. Furthermore, in the Weyerhaeuser FMA, the implementation of inter-firm IRM programs was perceived to be complicated by government restructuring, while Al-Pac FMA respondents were relatively unconcerned about restructuring. Nevertheless, all respondents from both case studies detected a decrease in organizational knowledge in regional government offices and a corresponding slow pace of plan approvals.

Although one explanation for these responses is that government capacity varies regionally, one may also conclude that the ability to develop a constructive working relationship with a land management agency varies with each company, where perhaps companies in the Al-Pac FMA are more effective than those in the Weyerhaeuser FMA at working with land management agencies during the development of innovative

proposals, and are better able to work around complications posed by understaffed government agencies. On the other hand, the considerable difference in inter-firm IRM developments, where Al-Pac is coordinating with a handful of large companies developing oil sands, while Weyerhaeuser is faced with multiple conventional oil and gas operations, may also explain respondents' perceptions. Owing to the short planning horizon for conventional oil and gas developments—several months to a year—land management agencies have a very short time to review applications for development, while forestry operations are reviewed a year to five years in advance and oil sands operations are reviewed over a number of years (Ross, 1995; Ross, 2002). Consequently, government agencies working in the Weyerhaeuser FMA may be pressed for time to approve conventional oil and gas developments, making it significantly more difficult to integrate these developments into inter-firm IRM programs. The harmonization of the planning horizons between forestry and conventional oil and gas developments is within the control of the provincial government, but appears not to be a current government priority.

Although voluntary environmental strategies are thought to be facilitated by a transfer of responsibility for environmental protection from the state to industry, the case of inter-firm IRM in Alberta illustrates how voluntary environmental strategies may still require support from the state. Ironically, a shift of responsibility to the industrial sector without adequate structural support from the state can actually complicate voluntary environmental strategies. State support and leadership is particularly important when strategies are implemented on public land characterized by multiple use and resource developments with vastly different planning and operational timelines. Consequently, a central theme emerging from this research is that even corporate greening through the implementation of voluntary environmental strategies requires a significant state role.

Natural Resource and Environmental Policy Framework

The natural resource and environmental policy frameworks are, according to most respondents, significant complicating factors in the development and implementation of inter-firm IRM programs. Complications were perceived to arise from several factors: the decentralization and deregulation of natural resource management, a corresponding ambiguity in natural resource policies, the allocation structure for natural resource tenure, and the significant difference in planning horizons between the forestry and oil and gas sectors. These factors are discussed separately but are all somewhat indicative of a gradual change in environmental governance in Alberta.

There has been considerable decentralization and deregulation in the natural resource and environmental policy regime in the province in recent years. Decentralization, or the shift of power away from the state to the broader policy community (Carney & Farrington, 1998), is evidenced by several observed phenomena in Alberta. Respondents noted a diminishing government role in environmental protection, greater public land management responsibility allocated to resource users, the reorganization of government bureaucracies and cut backs in staff, including agents who were perceived to have the necessary knowledge and time to assist with inter-industry IRM programs.

Furthermore, respondents from both case studies observed considerable ambiguity in natural resource policy documents and attributed conflicts over land use planning to this ambiguity. Policy ambiguity seems to complicate negotiations between resource users, as they have competing interpretations of these policies and lack the support of a single interpretation with which to structure inter-firm IRM planning. Owing to the considerable opportunity for multiple policy interpretations, users must convince each other of the importance of their own particular understanding. Thus, an ambiguous policy environment becomes a source of conflict in inter-firm IRM programs. This ambiguity may be explained in part by the trend of deregulation, or loosening of government control

(Carney & Farrington, 1998), in Alberta's natural resource sector. In the past 25 years, the provincial government has handed over greater regulatory responsibility to companies in the natural resource sectors, through a move toward self-monitoring programs supported by general regulatory guidelines and codes of practice, rather than command and control regulation (Alberta Environment, 1997). Consequently, natural resource extractive firms have an additional responsibility to regulate their own practices, without a corresponding policy structure to adequately inform and structure land management planning.

The policies and regulations controlling the allocation of conventional oil and gas leases also appear to be very significant components of the policy regime complicating inter-firm IRM. Oil and gas and government respondents from both case studies believed that the allocation of oil and gas tenure does not allow for the integration of other land uses. Some respondents believed that the provincial government is allocating oil and gas leases prior to land management planning, suggesting that any development after the allocation of leases must accommodate this land use. Oil and gas respondents in both case studies observed this particular phenomenon, while forestry respondents felt that the oil and gas sector holds considerable economic power in the province.

The policy framework was also blamed for promoting vastly different planning horizons for the oil and gas and forestry sectors. Respondents in the Weyerhaeuser FMA felt that the planning horizons for conventional oil and gas developments and forestry developments were sufficiently incompatible to prevent landscape-level, long-term IRM planning between the two sectors. In short, owing to the pressure on conventional oil and gas companies to develop as quickly as possible, most companies appear not to have adequate planning time to design landscape level developments with the forestry sector. An analysis of Alberta's natural resource policy regime and other documents studying Alberta's natural resource policy regime also support this proposition.

Findings suggest that although decentralization can result in greater equity and efficiency in decision-making (Ribot, 2002), it can actually encumber environmental decision-making policy by complicating policy negotiations between non-state actors. In the case of inter-firm IRM, these actors, who previously consulted largely with the state in policy negotiations—an authority with clear veto power— now negotiate with the state to a lesser extent, while negotiating to a greater extent with other non-state actors with varying, and far less explicit, degrees of economic and political power. Therefore, Alberta's experience with inter-firm IRM also illustrates how voluntary environmental strategies that require the cooperation of multiple actors may be facilitated by the presence of an arbitrator. In other words, the perceived impacts of the decentralization of Alberta's public land management reveal the importance of having an accountable entity, namely the provincial government, to structure and order inter-firm negotiations.

Although the literature on corporate greening suggests that a policy environment of strict regulation does not favour voluntary environmental strategies, Alberta's experience with inter-firm IRM suggests that an absence of clear regulation can actually complicate these strategies. Respondents in the forestry and oil and gas sectors made a distinction between clear regulation and binding regulation, arguing that clear regulation need not be binding to facilitate inter-firm IRM. Clear regulation was perceived to set boundaries for action and provide a common basis for negotiation. As such, regulations promoting voluntary environmental strategies appear to have two dimensions, where one dimension is the flexibility of the regulation and the other is the clarity of requirements.

Threat of Future Regulation

The threat of strict future regulation does not appear to be a significant factor influencing the development of inter-firm IRM programs. In fact, most respondents predicted greater deregulation in the future, with higher—although non-binding—environmental standards

incorporated into codes of practice. It appears that, unlike many other voluntary environmental strategies, inter-firm IRM is not in response to the threat of future regulation but to the prediction that resource industries will have even greater responsibility for land management in the future. Thus, inter-firm IRM may be a means for firms to adopt this responsibility while reducing costs and increasing the efficiency of their operations, particularly as users share basic development infrastructure and minimize compensative payments by reducing the volume of timber removed for development.

Perhaps more importantly, the public and market demands for environmentally friendly products, rather than government pressure, appear to be motivating firms to reform their practices. Both oil and gas and forestry respondents, for example, felt that environmental certification programs will guide their future practices. These sectors appear to be sensitive to cues from actors other than government, and may even trust these cues over those from government, particularly as respondents felt that government was not as environmentally responsive in comparison to pressures from the general public and the international market for environmentally friendly products.

Voluntary environmental strategies may not always be in response to threats from the state, as pressure from other spheres, such as the public and the market, are also influential. As illustrated by this study of inter-firm IRM, even in the absence of state pressure, firms' competitiveness and social legitimacy may continue to be threatened by public discontent and scrupulous market demands. Consequently, when state pressure for environmental reform is weak, but is strong in other spheres, firms may pay greater attention to non-state demands and respond by implementing voluntary environmental strategies.

Economic Dependence on Natural Resource Revenues

Constraints on inter-firm IRM extend beyond the natural resource policy regime to the provincial government's revenue structure, which is highly dependent on oil and gas development. Most respondents observed that land management initiatives must be compatible with the provincial government's agenda to maintain oil and gas development, an observation that is consistent with a review of government Annual Reports that state clearly the government's intention to maintain oil and gas development in the province and improve the efficiency of oil and gas development (Alberta Treasury, 2001; Alberta Resource Development, 2002; Alberta Finance, 2002). Respondents perceived that limits on oil and gas development are a prohibited option for land management planning. Since further oil and gas development appears to be a primary provincial objective, and land management planning is required to be compatible with this land use, inter-firm IRM programs are thus limited to strategies that do not affect significantly oil and gas development and expansion. Owing to the provincial dependence on revenue generated from the oil and gas sector, the province will likely not scale back on natural resource extraction in order to pursue innovative and environmentally responsible land management strategies.

In Alberta, the provincial economic structure, characterized by a reliance on revenues from natural resource extraction, is perceived to be constraining the development of voluntary environmental strategies. The provincial government's reliance on oil and gas revenues forces land management planners to conform to a system designed to maximize revenues from this industry. This finding is particularly interesting, as previous research on corporate environmental responsibility has not discussed the influence of regional economic dependency on voluntary strategies.

Field Cohesion

For those companies that are members of industry associations, the influence of field

cohesion does not appear to be a significant factor in inter-firm IRM programs. These respondents did not believe that pressure from their industry association was either facilitating or constraining inter-firm IRM programs. However, Al-Pac respondents clearly felt that being outside an association was an advantage for inter-firm IRM programs. Membership was predicted to constrain the development of inter-firm IRM programs, particularly if members were opposed to their development. Thus, field cohesion may only influence voluntary environmental strategies when industry associations are perceived to take a strong position on certain voluntary environmental reforms. Non-membership in an industry association, nevertheless, likely simplifies the implementation of voluntary environmental strategies, as firms can design and implement strategies independently.

Perceived Influence of Stakeholders

Surprisingly, direct pressure from local stakeholders does not appear to have a significant influence on inter-firm IRM. One could deduce, however, that local stakeholders have an indirect effect on these initiatives, since industry respondents felt that stakeholders would likely be pleased with their programs. Furthermore, regional and global stakeholders were also perceived to influence inter-firm IRM as many industry respondents considered the market for environmentally friendly products and public image to be important motivators. In the case of Weyerhaeuser, furthermore, local stakeholder pressure had influenced the company's decision to engage in inter-firm IRM programs in another FMA. This awareness of stakeholder concerns is not surprising, as all of the companies studied have a system to deal with stakeholder concerns. Consequently, it would be reasonable to conclude that stakeholder demands are still a significant contributor to participation in these programs, although local stakeholder pressure does not appear to be a direct motivator.

The literature suggests that stakeholder pressure has a significant influence on voluntary environmental strategies. This study illustrates that stakeholders have varying degrees of influence. This research illustrates that although local stakeholders may not be pressuring firms for environmental reforms, pressure from regional and global stakeholders can still be significant enough to encourage reform.

Overview of Internal Factors Influencing Voluntary Environmental Initiatives

Policy Skeptics and Supporters

In general, respondents' perceptions of the internal dynamics within their companies suggest that scepticism is outweighed by support for inter-firm IRM programs. Hence, the dynamics between sceptics and supporters does not seem to hindering these programs. Responses to other interview questions indicate that scepticism is outweighed because inter-firm IRM has obvious and tangible benefits. The overwhelming sense of support may also be explained by the presence of corporate leaders as key policy supporters. In the Al-Pac FMA, several leaders were cited as key policy supporters. Although supporters were considered to outweigh sceptics in the Weyerhaeuser FMA, the absence of inter-firm IRM programs may be explained by the perceived shortage of leaders as policy supporters. Therefore, one may conclude that firms with leaders as key policy supporters are more likely to undertake inter-firm IRM programs than those without leaders as key policy supporters. This proposition is also supported by some of the literature on corporate greening.

One conclusion from this study may be that intra-firm conflicts over voluntary environmental reforms may be minimized when leaders are supporters of reform. When leaders, rather than middle managers, demand reform there is little opportunity for intra-firm conflict as leaders typically have sufficient power to rouse support from reluctant personnel.

Corporate Leadership

As discussed above, corporate leadership appears to be a key factor influencing the adoption of inter-firm IRM programs. Overall, a stronger level of leadership was perceived in the Al-Pac FMA, where respondents identified senior managers from both Al-Pac and its partnering oil and gas companies as promoting inter-firm IRM. Conversely, in the Weyerhaeuser FMA, only one senior manager from the Weyerhaeuser company was identified, while no senior managers from oil and gas companies were identified. Furthermore, one Weyerhaeuser senior manager felt that the Slave Lake FMA was not as high a priority for IRM programs as were other regions. Thus, the absence of inter-firm IRM programs in the Weyerhaeuser FMA appears to be at least partly explained by a lack of support from key leaders in the forestry and oil and gas companies operating in this region.

Corporate leadership seems to be one of the most important internal characteristics affecting voluntary environmental strategies. In the case of inter-firm IRM, leaders are key policy supporters who influence the corporate mandate, persuade potential partners and support members of the organization who value greening. As such, successful voluntary environmental strategies require the support of key leaders within the corporation.

Characteristics of the Corporation

Responses from interviewees suggest that inter-firm IRM requires more resources, staff training and the provision of incentives. The planning and implementation of IRM programs appear to tax existing resources and force firms to re-evaluate how they conduct their day-to-day operations. The internal organizational structure of corporations, therefore, influences a firm's ability to engage in inter-firm IRM.

Responses from interviewees suggest that organizations must be willing to reform

their operations when planning and implementing IRM programs. Weyerhaeuser FMA respondents, more so than Al-Pac FMA respondents, expressed greater reluctance to reform basic operational structures to accommodate inter-firm IRM. This reluctance may help to explain why inter-firm IRM programs are absent in this FMA. Confidence in one's ability to work around external obstacles to IRM also appears to be a significant factor. Al-Pac FMA respondents indicated that they are more confident in their ability to work around external obstacles to IRM, while this same confidence was not evident in the Weyerhaeuser FMA.

Being able to manage a turbulent environment is also an important determinant of inter-firm IRM. Firms must be able to respond quickly to changes on their land base from other users, and adapt to demands for green production. At the same time they must be able to interpret ambiguous operational guidelines, negotiate effectively with government agencies over planning requirements and then convince these agencies to approve in a timely manner innovative proposals for land management. In addition, firms must be able to plan their operations without having full and clear knowledge of how their actions will affect other land users and how those users' actions will affect their operations. Owing to these multiple uncertainties, forestry and oil and gas companies benefit greatly from having the capacity and foresight to persuade other users on their land base to integrate their activities with their own operations, thereby reducing uncertainty in the external environment and creating a more predictable and controllable environment.

Although respondents from both case studies suggested that internal problems could slow down IRM, no characteristic was perceived to actually prevent IRM. All respondents' suggestions were presented as necessary improvements contributing to planning efficiency, and did not appear to make or break the development of inter-firm IRM programs. Assessing the capacity of the firms themselves is difficult, as findings are based on respondents' perceptions of necessary improvements, and were not

supplemented by a comprehensive review of internal factors. Thus, the information provided by the interviews can help to identify the perceived improvements but cannot contribute to solid conclusions about the organizations themselves.

The study of inter-firm IRM suggests that organizational capacity is an important determinant of participation in voluntary environmental strategies. Innovation in a turbulent environment is important, particularly for natural resource extractive firms, which operate in a rapidly changing environment influenced by other resource uses and shifting demands from international markets.

Perceived Benefits and Risks of Integration

Respondents identified a diverse number of benefits from inter-firm IRM, and in both case studies respondents listed similar benefits. Inter-firm IRM was seen by many interviewees to be a strategic planning initiative and was thought to enhance competitive advantage. Conversely, the cited risks of IRM were few and most respondents listed short-term risks and costs that could be avoided as projects progressed. In short, respondents perceived that the benefits of inter-firm IRM outweighed the risks. Nevertheless, as discussed in the previous section, a company's willingness to accept certain risks and costs appears to influence participation in inter-firm IRM programs. Weyerhaeuser FMA respondents seemed to be more reluctant to implement necessary changes in their operations and absorb start-up costs than their counterparts in the Al-Pac FMA. This reluctance may help to explain the absence of inter-firm IRM programs in the Weyerhaeuser FMA. Thus, this research agrees with existing literature on voluntary environmental strategies suggesting the voluntary environmental reform occurs when benefits of reform outweigh the costs, and firms are willing to take risks to acquire these benefits.

OVERVIEW OF PERCEIVED INFLUENCES ON INTER-ORGANIZATIONAL COOPERATION

Respondents from both case studies indicated that elements necessary for cooperation are most important during the initial phase of a project, suggesting that once a cooperative planning relationship has been established, following through on partner commitments is fairly straightforward. Several factors were identified as crucial to building cooperative relationships. First, interviewees in both case studies suggested that having similar values, goals and mandates is an important precursor to cooperative land management planning. The strength of these values were also important, as some companies, particularly in the Al-Pac FMA, were willing to take on risks and costs to support an overarching goal of environmental responsibility. Other companies, particularly in the oil and gas sector of the Weyerhaeuser FMA, appeared not to share the same commitment to environmental responsibility. Second, it appears that Al-Pac has developed innovative measures to persuade potential partners to engage in cooperative land management projects. In the Weyerhaeuser FMA, however, no organization was using persuasion as a means to strengthen cooperative land management planning.

The importance of social exchange in inter-organizational cooperation is also evident in the findings. Respondents felt that to participate in inter-firm IRM programs, partners need to be persuaded with evidence or promises of future benefits. Consequently, inter-organizational cooperation does not appear to be merely dependent on mutual goals and the compatibility of partners' activities, but the ability of partners to persuade other organizations with the promise of mutual and tangible rewards.

In fact, in the Weyerhaeuser FMA, the basic requirements for cooperation were perceived to be missing. The compatibility of operations and the willingness to cooperate were some of the key missing determinants of cooperation identified by participants. As the Weyerhaeuser FMA is characterized by conventional oil and gas operations, it is not surprising that the compatibility of operations is more of an issue in this region than in

the Al-Pac FMA where integration involves oil sands operations. However, if respondents in the Weyerhaeuser FMA perceived that the willingness to cooperate is missing, this may provide part of the explanation for why inter-firm IRM programs are absent in this region.

The need for a neutral facilitator—namely government—also emerged as an important requirement for cooperation in the Weyerhaeuser FMA, but did not appear in the Al-Pac FMA. One possible explanation may be that in the Weyerhaeuser FMA, because of the characteristics of firms themselves or the incompatibility of activities on the land base, cooperation is exceptionally difficult, so much so that a third party is required to facilitate inter-firm negotiations. Again, respondents felt government should be actively involved in inter-firm IRM programs.

Deregulation and the external policy regime have the potential to complicate inter-organizational cooperation. Respondents asked for greater clarity in the rules and regulations governing inter-firm IRM, as during the process of negotiations rules need to be clear; otherwise ambiguity presents another basis for disagreement. Furthermore, this process of negotiation seems to depend on whether the existing policy regime can accommodate a cooperative planning process. In Alberta, the natural resource policy regime is based on a model of resource development promoting independence between users, as each sector is supported by its own set of legislation and policy, and consequently develops independently of other sectors. Hence, a model supporting negotiation and cooperation between sectors is difficult to implement, as it contradicts the current framework that promotes individualized resource development without consideration for the long-term impacts of one's activities on other land users.

VOLUNTARY ENVIRONMENTAL STRATEGIES AS EXAMPLES OF ECO-MODERNIST PROGRAMS

As noted in the literature review chapter, voluntary environmental strategies, such as

inter-firm IRM, are examples of eco-modernist political programs, as they represent organizational acknowledgement of ecological limits in industrial production and attempt to restructure industrial production to acquire environmental and economic benefits. Consequently, an awareness of the various influences on voluntary environmental strategies can inform and enrich ecological modernization theory, as discussed below. Note that this discussion is most applicable to industrialized countries such as Canada, where natural resource extraction forms a large segment of the national economy.

Ecological modernization theorists suggest that environmental reforms are most effective if implemented in a decentralized governance regime, where non-state actors from the public and economic spheres implement reforms (Christoff, 1996; Mol, 1996; Mol, 1997; Mol & Sonnenfeld, 2000). Certain theorists maintain, nevertheless, that the state should play a significant role, albeit through steering, rather than directing, environmental policy (Mol, 1997; Murphy, 2000). This research illustrates the importance of defining more clearly the role the state must continue to play in decentralized environmental governance, particularly as the specific mechanics of this steering role have not yet been discussed in any great detail in the ecological modernization literature. In the case of Alberta, guidance from the state is particularly crucial in eco-modernist programs in the natural resource sector, as resource extraction takes place in a complicated external context, where land open to resource extraction is largely publicly-owned and accessed simultaneously by multiple users. Moreover, the implementation of eco-modernist programs is affected by property rights structures and the context of industrial natural resource extraction. On publicly owned land, the state is ultimately responsible for land management and, therefore, needs to steer policy while remaining accountable to the public and managing the environmental impacts of multiple users. As this study of inter-firm IRM illustrates, if the state does not take on this role, eco-modernist programs implemented by non-state actors will face significant external

constraints.

The influence of economic structures on voluntary environmental strategies is another key theme emerging from this research, where eco-modernist programs may be limited to diversified, largely post-industrial economies such as those found in Western Europe. Current research on ecological modernization continues to suggest that Western Europe is a hotbed of eco-modernist programs, although examples from North America and certain industrializing nations have started to appear in the literature (Mol & Sonnenfeld, 2000). In a diversified economy, should voluntary environmental strategies disproportionately affect one sector over another, they run less risk of destabilizing regional economies, and are less likely to face opposition from another sector with significantly greater political power, whereas in regions with only a few key economic sectors they run a considerably greater risk. Consequently, eco-modernist programs are more likely to be embraced and less likely to meet resistance in regions with multiple strong economic sectors.

Ecological modernization theory can be considered a macro theory in environmental sociology, and it emphasizes macro-level relationships, such as those between the state and various non-state sectors, paying less attention to micro-level relationships. This research highlights the important influence of micro-level relationships, such as the internal workings of organizations, as a means of understanding eco-modernist programs. In particular, it reveals that the structure and internal relationships within organizations, such as individual firms, play a very significant role in the success of these programs. This study begins to tie together an understanding of some of the micro and macro-level influences on eco-modernist programs.

When tying these observations to our current understanding of ecological modernization, the capacity of non-state organizations and the complexity of the external environment again appear to have an important influence on eco-modernist programs.

Organizations undertaking environmental reform must be able to work effectively within with the complexities posed by their external environment, and as inter-firm IRM illustrates, certain eco-modernist programs may depend on the successful cooperation of multiple organizations. In fact, this research highlights the interdependence of non-state organizations, such as corporations, in implementing environmental reforms and the importance of cooperation between these organizations. In some cases, particularly in a complex environment, organizations face greater difficulties if they decide to work independently toward environmental reform, and would benefit from cooperating with other organizations facing similar constraints. Finally, the importance of adequate guidance from the state in environmental reform is again emphasized by this study. Without facilitating cooperation by, for example, providing clear rules regarding how to approach environmental reforms, the state risks complicating efforts toward ecological modernization.

Confidence in the Results

Themes articulating the influence of external factors on inter-firm IRM programs likely present an accurate reflection of the views of actors involved in proposed and existing inter-firm IRM programs in Alberta. This degree of confidence is supported by several factors. First, a background policy review supports the notion that the policy regime and system of governance have a significant influence on inter-firm IRM. Second, the exploratory phase of the research program also revealed many of the themes discussed above, including the effects of institutional and bureaucratic capacity, the limits imposed by the natural resource policy regime and the challenge of inter-firm IRM in the face of economic dependence on the oil and gas sector. Third, these same themes also appeared in many external publications from various scholars and research institutions studying natural resource management in Alberta.

Themes concerning internal level influences on IRM programs, on the other hand, are fairly preliminary as they are drawn from responses to a few interview questions aimed at measuring how respondents evaluated their own organization's capacity to handle the demands of inter-firm IRM. A study dedicated to understanding the internal dynamics within these firms would likely provide more reliable results. As such, the above findings represent an introductory and basic illustration of the internal dynamics influencing inter-firm IRM.

7. CONCLUSION

The purpose of this study was to explore the external and internal challenges to voluntary environmental strategies, using the example of inter-firm IRM. This thesis research project compared the opportunities and constraints for inter-firm IRM in two case study areas, one without inter-firm IRM initiatives and one with several proposed developments in place. Previous studies of corporate environmental responsiveness have typically focussed on the determinants of greening within control of the firm itself or within its immediate external environment. This study, on the other hand, has highlighted the impact of constraints in the larger external environment such as the system of governance, and the activities and impacts of operations from other corporations, while also recognizing the importance of internal factors on corporate greening.

Structural constraints on inter-firm IRM programs are characterized by the decentralization of natural resource management and a corresponding shift in environmental governance. This shift has transferred greater responsibility for land management to the forestry and oil and gas sectors without the necessary structural support for these groups to take on this responsibility. The regional economic structure provides another constraint, particularly as inter-firm IRM programs must conform to a system designed to maximize revenues from natural resource extraction. These findings contribute new insights to the study of voluntary environmental strategies, which have tended to promote a decentralized policy regime for the implementation of these programs and have not paid much attention to the influence of regional economic structures.

It would be misleading to conclude that external factors have the most important influence on voluntary environmental strategies. Characteristics of the firms themselves also play a significant role in the success of voluntary environmental strategies. Internal

to the firm, inter-firm IRM programs seem to benefit most greatly from strong corporate leadership supporting voluntary environmental reform, as well as the capacity and innovation to respond to a turbulent external environment. Finally, the ability to cooperate with other users is extremely important to inter-firm IRM, and is influenced by both external and internal factors. Owing to the major focus of this research on external factors, it is difficult to draw conclusions regarding the relative importance of these two factors. Nevertheless, certain key internal characteristics, such as corporate leadership and the organizational capacity to deal with a turbulent external environment were found to have a significant influence on inter-firm IRM. This study also underscores the importance of certain basic, and seemingly simple, requirements for inter-organizational cooperation. Overall, respondents articulated the need for a common foundation for inter-organizational cooperation. Cooperative planning appears to require a mutual desire for similar ends.

These findings illustrate how theories in environmental sociology, particularly ecological modernization theory, could be advanced with more research that focuses on the combined impacts of both macro and micro-level processes in environmental reform. An analysis of the role of the state in eco-modernist programs such as voluntary environmental strategies reveals some of the macro-level considerations in environmental sociological analysis, in particular the role of institutional reform and environmental governance. A study of the perceived internal determinants of corporate greening, on the other hand, highlights the importance of micro-level factors, such as the internal organization and capacity of non-state organizations. Finally, this study illustrates how environmental reforms, particularly in a complex environment, may require efforts of multiple, rather than individual organizations, and, consequently, depend on some degree of inter-organizational cooperation.

AREAS FOR FUTURE RESEARCH

The relationship between external factors and voluntary environmental strategies, particularly the potential for external factors to challenge these strategies, prompts numerous other research questions. First, as this research project takes only a brief look at the relative importance of internal versus external factors, a more comprehensive examination of internal factors would reveal more concretely the relative importance of internal and external factors. A study of internal factors would require a comprehensive analysis of organizational behaviour. Furthermore, it would also be useful to compare regions with similar types of resource development, as this research project looks at regions with fairly different types of development. For example, an extension of this study ought to compare two FMAs with conventional oil and gas, one with inter-firm IRM programs and another without these programs.

This research identified the need for reform in Alberta's natural resource policy regime so as to better accommodate inter-firm IRM, however further research is necessary to determine how the policy regime could be reformed. Further research could contribute to recommendations allowing government to transfer land management responsibility to external actors while continuing to steer land management and arbitrate negotiations between actors within the policy community.

Research should also explore the external constraints on other voluntary environmental strategies in the domain of natural resource extraction to determine if themes developed in this research project also appear. An exciting opportunity exists to study the external opportunities and constraints influencing the environmental certification of forest products, particularly as certification requires the negotiation among non-state actors during the development of standards appropriate to the specific ecological and socio-economic context within which timber extraction occurs. Research should identify how structural constraints and opportunities have affected these

initiatives, particularly as the Canadian forest industry predicts that certified forest products will be in great demand in the future (Hoberg, 1999).

The importance of cooperation in voluntary environmental strategies could be explored further, using a supply chain example in the manufacturing sector where multiple organizations contributing to various stages of production have improved their environmental performance. Research would need to determine how firms at one stage of this supply chain were able to convince other firms at different stages of the chain to improve their environmental performance and then cooperate with these firms to produce an environmentally friendly final product.

Research on ecological modernization should not neglect the potential insights gained from further studies focussing on natural resource-based industries, particularly in regions with limited economic diversity. In Canada, these industries are affected by property rights regimes and the broader context of industrial resource development. Consequently, natural resource-based industries, particularly when attached to powerful political and economic interests, present unique challenges to ecological modernization that may not exist in manufacturing sectors.

This research also prompts theoretical research questions, particularly as relates to the broader sociological implications of a decentralized system of environmental governance, where industry is a primary actor. The implications of decentralized governance systems—in this instance more aptly termed privatized governance (Levy & Newell, 2002)—in areas that are highly dependent on natural resource extraction is particularly serious, and worthy of greater research. In isolated resource dependent regions, extractive industries hold significant economic power (Marchak, 1983) and as such, citizens have few options for opposing these developments if their local and regional governments are not actively steering environmental protection and natural resource development.

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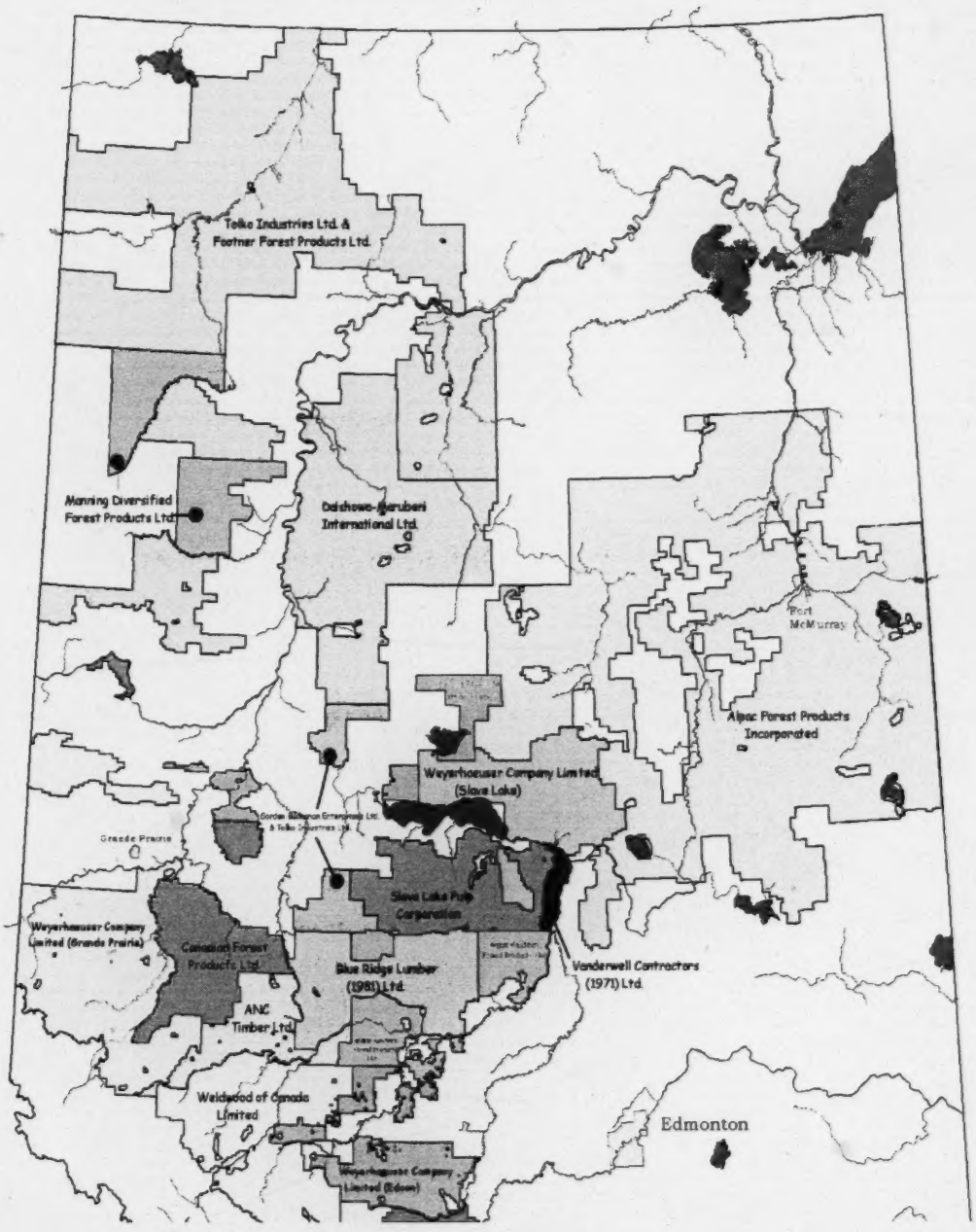
APPENDIX A: MAP OF FOREST MANAGEMENT AGREEMENTS IN NORTHERN ALBERTA



Map provided by Alberta Sustainable Resource Development, December 2002

APPENDIX B: LIST OF INTERVIEW QUESTIONS

Weyerhaeuser FMA Questions

- [All Respondents] Some of our participants have mentioned cumulative effects as a core environmental issue and this issue seems to be a motivation for IRM. The following actions have been suggested as necessary to address cumulative effects: (*defined as the combined impacts of all developments and activities on a land base*) Which of these actions do think are the most important for reducing cumulative effects?[8]

Better technology e.g. Smaller seismic lines, reclamation technology, etc.
Adaptive Management e.g. provide scientific information to inform management decisions
GIS map-based planning: e.g. To manage for multiple values and uses
Co-ordination among multiple land users e.g. develop joint management plans
Public Participation or Consultation: e.g. Understanding various groups' values
Limits on the rate and type of development activity: e.g. Thresholds, regulations or limits on developments
Economic incentives provided by the Province: e.g. Rebates; lower resource rents

- [All Respondents] Given your comments on what actions are necessary, do you have confidence that the provincial government can address cumulative impacts?
→If not: Why not?

- [All Respondents] How do you expect to levels of government regulation in land management will change in the future? {Probe: increasing or decreasing}

- [All Respondents] Who do you think is really driving improvements in ecological management in Alberta? Who has taken the most action to see that those concerns were addressed? (e.g.: government department, forest industry, oil/gas industry, other groups)

- [Government] Here are some factors industry participants have listed as influencing their ability to plan with (other sector):
  - Different planning horizons and scale of operations between oil and gas and forestry sectors
  - Positive, close working relationship with government personnel regarding development approvals
  - Familiarity with the company in (the oil and gas or forestry sector)
  - Ability to share planning information

  a) Which factors are the most important for these sectors to plan with each other?

  b) Some of our industry participants have mentioned that the different planning horizons and scale of operations between the forestry and oil and gas sectors constrains the integration of their operations. In what ways could the provincial government influence these two factors?

  c) In your opinion, are there any other factors that influence landscape-level planning between the oil and gas and forestry sectors?

  d) (If not already mentioned) Are there some factors within oil and gas and forestry companies themselves that complicate landscape-level planning with the other sector?

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[8] This question was not analyzed as part of this study and was included as part of a larger project funding this research. This particular question is included in Appendix B to better illustrate the context of the second question regarding government management of cumulative effects issues.

(e.g. attitude of personnel, expertise of personnel, leadership, organization of various departments, resources)?

- [Government] What is your agency doing to encourage landscape-level planning between the oil and gas and forestry companies?

- [Government] Has a unique development plan—plan for resource development that are outside the status quo and/or exceed regulatory requirements—ever been sent to your agency for approval? (e.g. Environmental Impact Assessments; Annual Operating Areas, Annual Operating Plans, Detailed Forest Management Plans; Environmental Field Reports)
  If yes→ How would your agency handle that application?

- [Industry: non-senior managers] Why does your company want to engage in more landscape-level planning with the (forestry or oil and gas) industry?

- [Industry: non-senior managers] Have you ever tried to implement a landscape-level plan—defined as coordination over a large area for a series of developments—with a (forestry or oil and gas) company? What happened?

- [Industry: non-senior managers; First Nations] We've heard that different planning horizons and scale of operations between oil and gas and forestry sectors can complicate inter-industry landscape-level planning. How is (your company/ companies in this area) dealing with these issues?

- [Industry: non-senior managers; First Nations] Has government restructuring or cutbacks in staff or budgets had any effect on (your company/ companies in this area) ability to integrate planning with (forestry or oil and gas sector)?

- [Industry: non-senior managers; First Nations] In what ways could government better facilitate (your company/ companies in this area) efforts to coordinate with the (forestry or oil and gas sector)?

- [Industry: non-senior managers] Has being a member of (Alberta Forestry Products Association/ Canadian Association of Petroleum Producers) had an influence on your company's efforts to integrate with (forestry or oil and gas sector)? Has it made it easier or more difficult?

- [Industry: non-senior managers] What are some desirable characteristics about companies in the (forestry or oil and gas) sector that facilitate landscape-level planning? (e.g. opportunities for face-to-face interaction with personnel; Number of staff and resources held by the other company; Stability of ownership; Common priorities for land management)

- [All Industry] Who in your company is really promoting landscape-level planning with (the forestry or oil and gas sector)? What position in the company do these people hold?

- [All Industry] What do the more sceptical people in the company think about landscape level planning with the (forestry or oil and gas sector)?

- [All Industry] What are some improvements within your own company that could enhance integration efforts? (e.g. attitude of personnel, expertise of personnel, leadership, organization of various departments, resources).

- [All Industry] Overall, how will more landscape-level planning between your company and the (forestry or oil and gas) sector benefit your company?

- [All Industry] What are some risks or sacrifices your company will have to take if it is to pursue more landscape-level planning with the (forestry or oil and gas) sector?

- [All Industry] Have you considered adopting a program similar to the Integrated Land Management programs undertaken by Al-Pac, Conoco, Nexen and TrueNorth Canada?
If yes→ What are some of the challenges your company will face if it tries to adopt a similar program?
If No→ Why not?

- [Industry: non-senior managers] Has there been a response from stakeholders in your area (First Nations, ENGOs, general public) to any of the coordinated planning efforts between your company and the (forestry or oil and gas) sector?

- [Industry: non-senior managers] Are there groups that have been critical of land use practices in this (area/ area where your company operates)? Which groups?

- [Industry: non-senior managers] How has your company responded to their concerns?

- [Industry Senior Managers] Does your company want to engage in more landscape-level planning with the (forestry or oil and gas) sector?
→ if No: Under what conditions would you or your company consider engaging in landscape-level planning with this sector?

- [Industry Senior Managers] In your opinion, how does the adoption of more landscape-level planning fit into your company's environmental policy?

- [Industry Senior Managers] What factors outside your company's control could complicate landscape-level planning with the (forestry or oil and gas) sector?

- [Industry Senior Managers] What role should senior managers from oil and gas and forestry companies play relative to operational managers or planners in integration programs?

Al-Pac FMA Questions

- [All Respondents] Some of our participants have mentioned cumulative effects as a core environmental issue and this issue seems to be a motivation for IRM. The following actions have been suggested as necessary to address cumulative effects: (*defined as the combined impacts of all developments and activities on a land base*) Which of these actions do think are the most important for reducing cumulative effects?[9]
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Adaptive Management e.g. provide scientific information to inform management decisions
GIS map-based planning: e.g. To manage for multiple values and uses
Co-ordination among multiple land users e.g. develop joint management plans
Public Participation or Consultation: e.g. Understanding various groups' values
Limits on the rate and type of development activity: e.g. Thresholds, regulations or limits on developments
Economic incentives provided by the Province: e.g. Rebates; lower resource rents

- [All Respondents] Given your comments on what actions are necessary, do you have confidence that the provincial government can address cumulative impacts?

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[9] This question was not analyzed as part of this thesis research project and was included as part of a larger research project funding this thesis research. This particular question is included in Appendix B to better illustrate the context of the second question regarding government management of cumulative effects issues.

→If not: Why not?

- [All Respondents] How do you expect to levels of government regulation in land management will change in the future? {Probe: increasing or decreasing}

- [All Respondents] Who do you think is really driving improvements in ecological management in Alberta? Who has taken the most action to see that those concerns were addressed? (e.g: government department., forest industry, oil/gas industry, other groups)

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  - Different planning horizons and scale of operations between oil and gas and forestry sectors
  - Positive, close working relationship with government personnel regarding development approvals
  - Familiarity with the company in the (oil and gas or forestry) sector
  - Ability to share planning information

  a) Which factors are the most important for these sectors to plan with each other?

  b) Some of our industry participants have mentioned that the different planning horizons and scale of operations between the forestry and oil and gas sectors constrains the integration of their operations. In what ways could the provincial government influence these two factors?

  c) In your opinion, are there any other factors that influence landscape-level planning between the oil and gas and forestry sectors?

  d) (If not already mentioned) Are there some factors within oil and gas and forestry companies themselves that complicate landscape-level planning with the other sector? (e.g. attitude of personnel, expertise of personnel, leadership, organization of various departments, resources)?

- [Government] What is your agency doing to encourage landscape-level planning between the oil and gas and forestry companies?

- [Government] Has a unique development plan— plans for resource development that are outside the status quo and/or exceed regulatory requirements—ever been sent to your agency for approval? (e.g. Environmental Impact Assessments; Annual Operating Areas, Annual Operating Plans, Detailed Forest Management Plans, Environmental Field Reports)
  If yes→ How would your agency handle that application?

- [Industry: non-senior managers] Why does your company want to engage in more landscape-level planning with the (forestry or oil and gas) sector?

- [Industry: non-senior managers] Have you ever tried to implement a landscape-level plan—defined as coordination over a large area for a series of developments—with a (forestry or oil and gas) company? What happened?

- [Industry: non-senior managers; First Nations] We've heard that different planning horizons and scale of operations between oil and gas and forestry sectors can complicate inter-industry landscape-level planning. How is (your company/companies in this area) dealing with these issues?

- [Industry: non-senior managers, First Nations] Has government restructuring or cutbacks in staff or budgets had any effect on (your company/ companies in this area) ability to integrate planning with (forestry or oil and gas sector)?

- [Industry: non-senior managers; First Nations] In what ways could government better facilitate (your company/ companies in this area) efforts to coordinate with the (forestry or oil and gas sector)?

- [Industry: non-senior managers] Has being outside the Alberta Forest Products Association had an influence on your company's ability to be innovative in planning with the oil and gas sector? Has it made it easier or more difficult?

- [Industry: non-senior managers] What are some desirable characteristics about companies in the (forestry or oil and gas) sector that facilitate landscape-level planning? (e.g. opportunities for face-to-face interaction with personnel; Number of staff and resources held by the other company; Stability of ownership; Common priorities for land management)

- [All Industry] Who in your company is really promoting landscape-level planning with (the forestry or oil and gas sector)? What position in the company do these people hold?

- [All Industry] What do the more sceptical people in the company think about landscape level planning with the (forestry or oil and gas sector)?

- [All Industry] What are some improvements within your own company that could enhance integration efforts? (e.g. attitude of personnel, expertise of personnel, leadership, organization of various departments, resources).

- [All Industry] Overall, how have the Integrated Landscape Management programs benefited your company?

- [All Industry] What are some risks or sacrifices of undertaking the Integrated Landscape Management programs ?

- [Industry: non-senior managers] Has there been a response from stakeholders in your area (First Nations, ENGOs, general public) to any of the coordinated planning efforts between your company and (forestry or oil and gas) sector?

- Aside from government and industry, have other stakeholders on your land base (e.g. general public, ENGOs, First Nations) been involved in any way in the Integrated Landscape Management programs?
  If yes → What has been their response to this initiative?
  If no → Has there been any response to this initiative from stakeholders in your area (First Nations, ENGOs, general public?

- [Industry: non-senior managers] Are there groups that have been critical of land use practices in this (area/ area where your company operates)? Which groups?

- [Industry: non-senior managers] How has your company responded to their concerns?

- [Industry Senior Managers] In your opinion, how do the Integrated Landscape Management programs fit into your company's environmental policy?

- [Industry Senior Managers] What factors outside your company's control complicate implementation of the Integrated Landscape Management programs?

- [Industry Senior Managers] What role should senior managers from oil and gas and forestry companies play relative to operational managers or planners in the Integrated Landscape Management programs?

- [Industry Senior Managers] If other (forestry/oil and gas) companies are interested in pursuing Integrated Landscape Management programs, what do they need as a company to be successful?

Questions for ENGO respondents

- How would you evaluate the Alberta government's efforts to encourage environmentally responsible practices from the oil and gas industry?

- How would you evaluate the Alberta government's efforts to encourage environmentally responsible practices from forestry industry?

- What more could the government be doing to encourage environmentally responsible practices from these industries?

APPENDIX C: CONSENT FORM

Title of the Research Project: Integrated Resource Management: Opportunities and Constraints

Consent:

- I acknowledge that I have been asked to participate in a research study and have received and read the attached information letter.
- I am aware of the risks associated with participating in this study and know that I can refuse to answer specific questions or may stop the interview at any time.
- I have been given an opportunity to ask questions and know that I may contact any of the investigators listed on the back of this page with any further questions.
- I am aware that the interview will be tape-recorded and that only the investigators and transcriber will have access to the tape and transcriptions.
- I understand that information from this interview will be used in publications.
- I am aware that in these publications I will be referred to by my organizational affiliation (e.g. government, forest industry, oil and gas industry, First Nations or non-governmental organizations). I realize that if I am an industry participant in a case study area, I may be referred to by my company name.

Name of Participant (Please print)	Signature of Participant
Name of Witness (Please print)	Signature of Witness
Date	Signature of Investigator

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